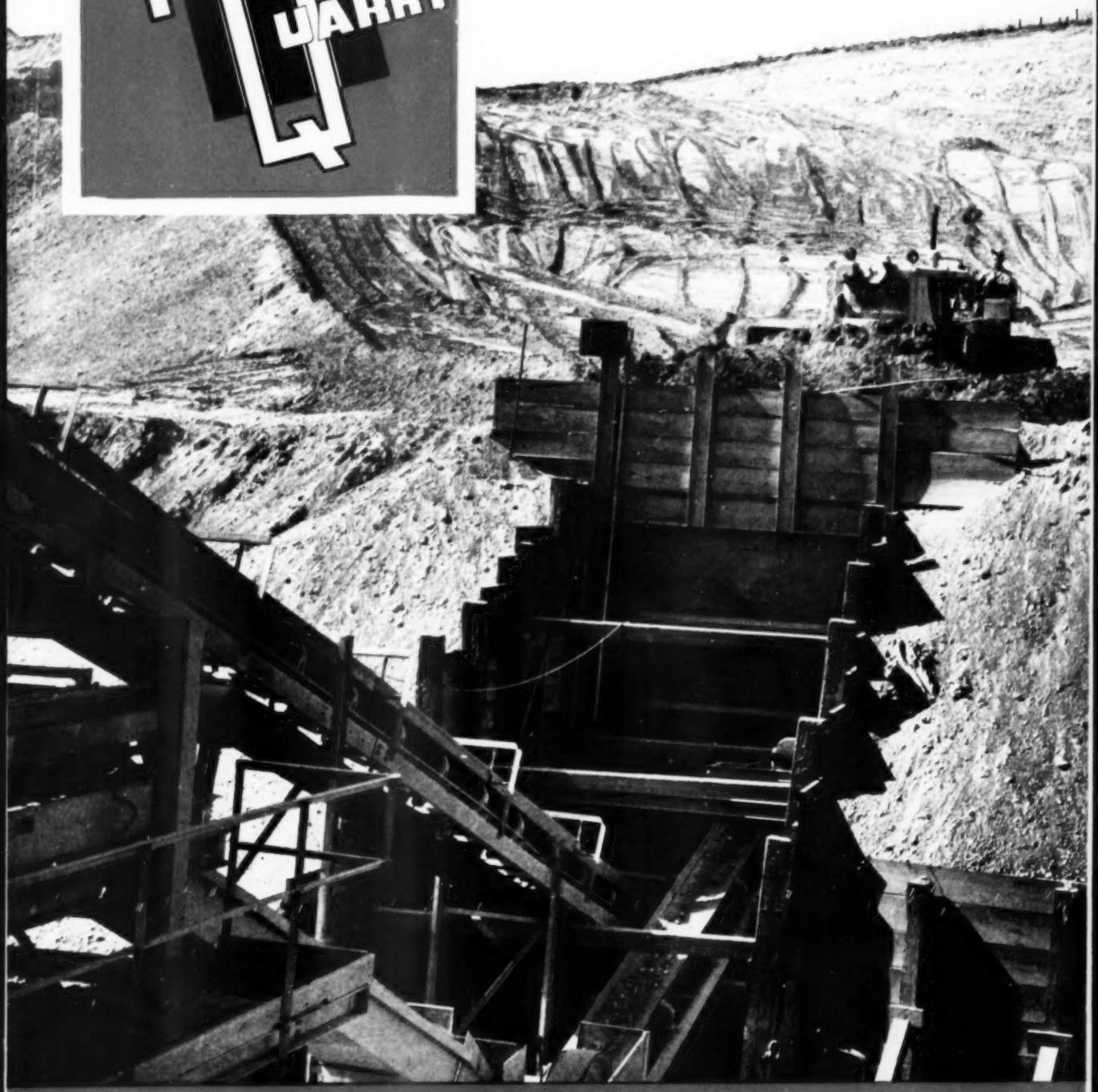
PIT AND QUARRY

SEPTEMBER 1953



Sand and Gravel Operation of the Owl Rock Products Company, Monrovia, California.

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FOR DEPENDABLE HEAVY-DUTY SHIPPING SACKS...

there is no substitute for kraft!

Kraft, manufactured from wood fibers, is the strongest paper known to industry. It was introduced in this country in 1909, just about the time when the first generation of Gilmans started manufacturing bags.

As pioneers, we have spanned the years with practical knowledge, technical skills, packaging experience . . . and our modern, completely integrated facilities are a notable example of kraft paper production and conversion.

Now in our 3rd generation of specialization, we are expert in pulp and paper making, in bag manufacturing, in bag printing, in bag designing.

Dependable as a Source . . .
Dependable as a Service

KRAFT BAG CORPORATION

GILMAN PAPER COMPANY SUBSIDIARY
630 Fifth Avenue, New York 20, N.Y.
Daily News Bldg., Chicago 6, Ill.
Plants at Gilman, Vt. & St. Marys, Ga.

MADE-TO-ORDER MULTIWALL SHIPPING SACKS
2 TO 6 PLY—PRINTED OR PLAIN

- Sewn Valve
- Sewn Open Mouth
- Pasted Valve
- Pasted Open Mouth
- Flat Sewn Valve
- Flat Sewn Open Mouth

Gilman PAPER CO.
• St. Marys Kraft Corp.
• Gummed Tape Div.
• The Gilbound Corp.
• Kraft Bag Corp.

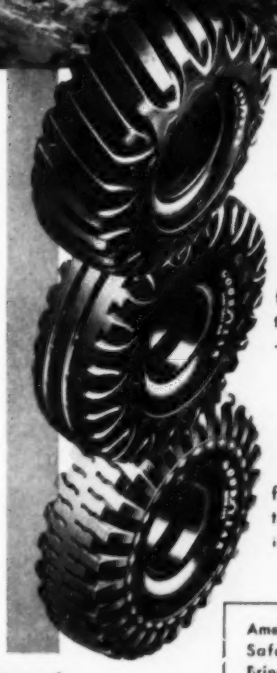
If your product fits into a bag—we'll make the bag to fit your product

PERFORMANCE PAYS OFF!

THE tires you buy or specify can help keep you ahead of schedule—or drop you into a mess of dead equipment, idle men and busy red ink.

Goodyears are the best workers—the longest wearers—the tires *specifically designed* to thrive on your kind of jobs—to give you lower costs per hour.

It takes worlds of experience to build such tires—and Goodyear has it. Goodyear has built more tires for more specific purposes than anyone else on earth. So when you buy or specify Goodyears, you're buying the tires that can put more money in your pockets. Goodyear, Truck Tire Department, Akron 16, Ohio.



HARD ROCK LUG
for stamina and full pull, forward or reverse, on all kinds of tire-killing work.

HARD ROCK RIB
for front wheels on all tire-killing service. Rugged—smooth rolling—easy steering.

ROAD LUG
for toughness and super-traction OFF the road and long, smooth mileage ON the road.

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

America Needs Better, Safer Roads—Let's Bring them Up to PAR

Road Log—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

PIT AND QUARRY, September 1953, Vol. 46, No. 3. Published monthly by the Pit and Quarry Publications, Inc., 431 South Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1952, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

superhighways...

built with

TELSMITH

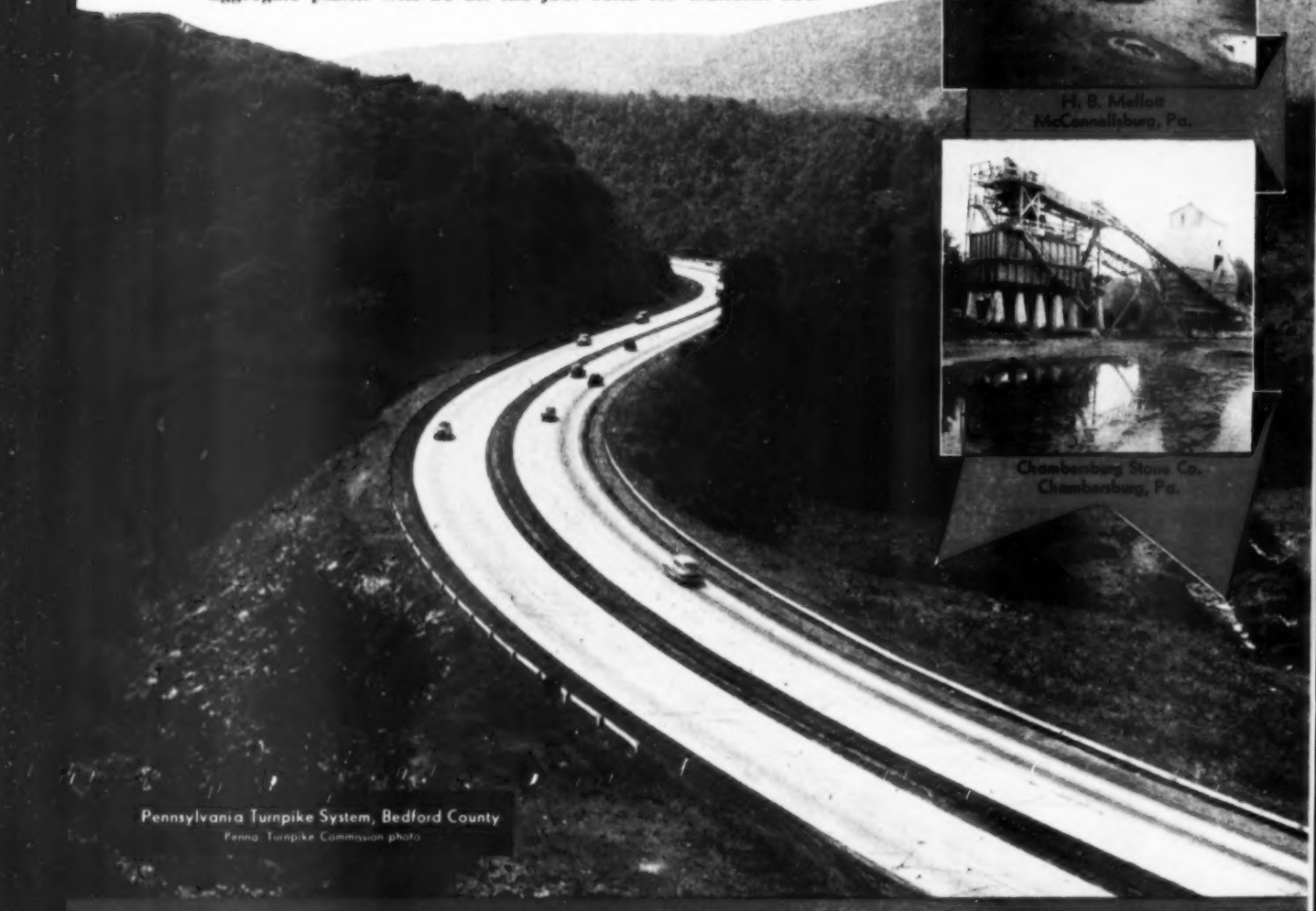
aggregate plants

America is growing a new set of arteries—toll expressways to form a network of superhighways throughout the nation. The famous Pennsylvania Turnpike System and the New Jersey Turnpike were built with the help of 15 Telsmith designed and equipped aggregate plants. Several Telsmith aggregate plants are now being erected to help build the new Ohio Turnpike. When other expressways are built, Telsmith aggregate plants will be on the job. Send for Bulletin 266.

New Enterprise Stone & Lime Co.
Everett, Pennsylvania

H. B. Mellott
McConnellsburg, Pa.

Chambersburg Stone Co.
Chambersburg, Pa.



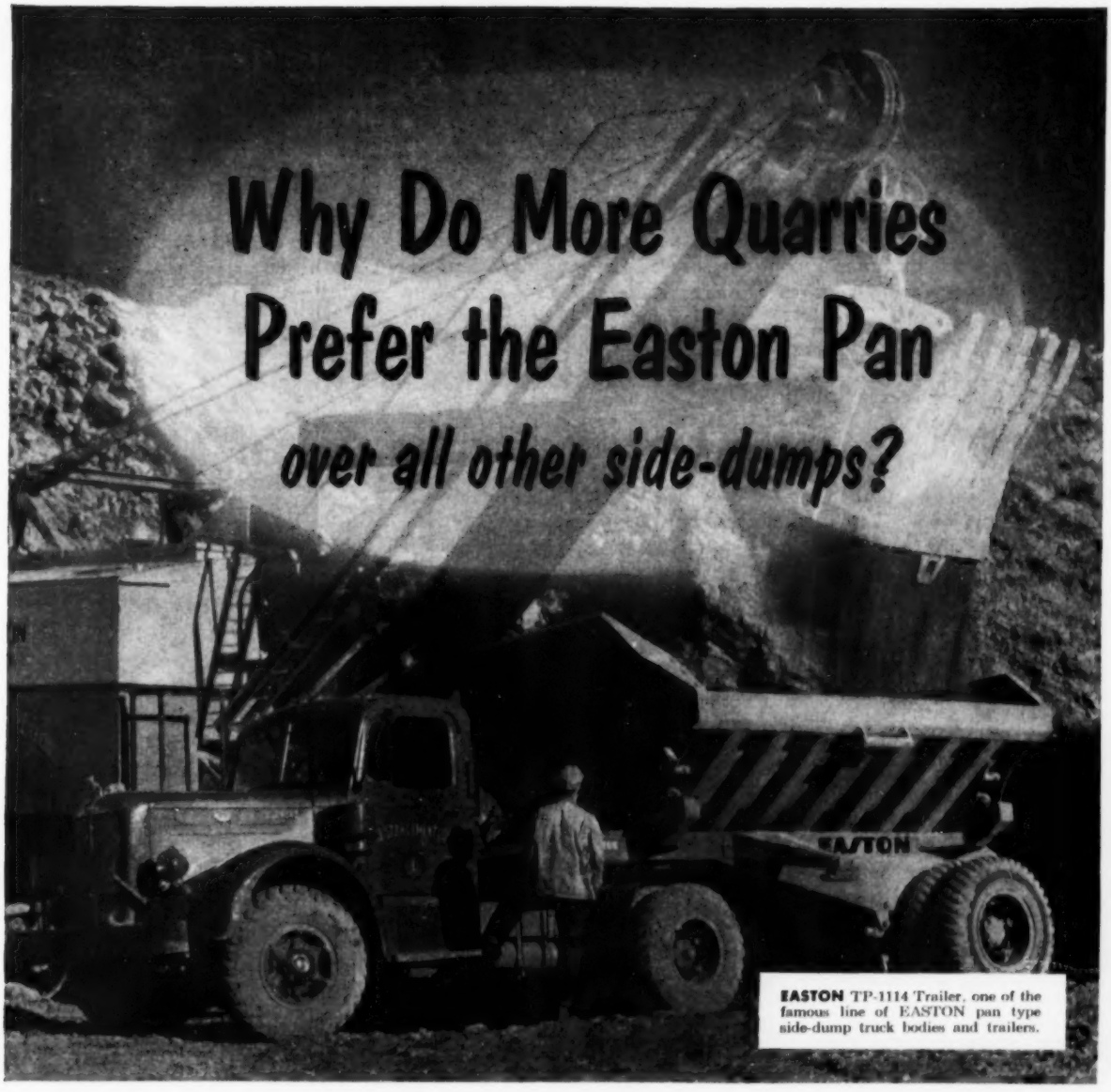
Pennsylvania Turnpike System, Bedford County
Penna. Turnpike Commission photo

SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Smithworks, Milwaukee

211 W. Wacker Drive, Chicago 6, Ill. • 713 Commercial Trust Bldg., Philadelphia 2, Pa. • 225 Main Street, Cambridge 42, Mass. • Beelah Equipment Co., Milwaukee 2, Wis. • The Mahoney Co., 2529 Lakeside Ave., Cleveland 14, Ohio • Mineral Equipment Co., 833 Union St., Rochester, Minn. • Minor Equipment & Supply Co., San Francisco 2, Calif. • Robert E. Bailey, 816 W. 8th St., Los Angeles 17, Calif. • Clyde Equipment Co., Portland 9, Ore. & Seattle 4, Wash. • Blair Equipment Co., Charleston 25, W. Va.—Roanoke 7, & Richmond 16, Va.

Why Do More Quarries Prefer the Easton Pan *over all other side-dumps?*



EASTON TP-1114 Trailer, one of the famous line of EASTON pan type side-dump truck bodies and trailers.

More crushed stone and cement plant quarries use the EASTON pan than all other side-dumps combined. Here, a few important reasons why:

CAPACITY! There are four standard capacities, trailer or truck-mounted, to meet almost any speed, load or grade requirement. Improved design adds 13% more water-level capacity with no increase in overall dimensions. Combination units provide capacities up to 40 tons.

FLEXIBILITY! The EASTON pan may be used in double-trailer or truck-body-and-trailer combinations. Each unit of such a combination may be used independently to meet varying job requirements. Also, the combination may be separated for individual maintenance on truck, tractor, or either haulage unit.

ECONOMY! The doorless two-way, reversible side-dump body has no moving parts — nothing to go wrong. Complete cost of installation, with truck or tractor of your choice, is surprisingly low. Savings pile up through years of dependable, productive service.

SMOOTH! You roll up, side-dump, and roll away in a smooth, straight production-line operation. No backing, no turning at the dumping point. The driver sees where he is going at all times. Operation is easy on fuel, easy on tires, easy on the truck or tractor engine, easy on the driver, easy on cost. B-1058

SAFETY! Dumping is remote-controlled, feeding stop-and-hold to the crusher. EASTON overhead hoist eliminates the dead weight and costly maintenance of individual integral body hoists.

Use this easy way to get the facts:

Backed by 40 years of specialized experience in quarry transportation, EASTON engineers have designed a copyrighted DATAFORM which has enabled hundreds of operators to get basic cost and performance data related specifically to their own transportation problems. It will pay you to investigate! Write today, without obligation, for your free copy of the DATAFORM.

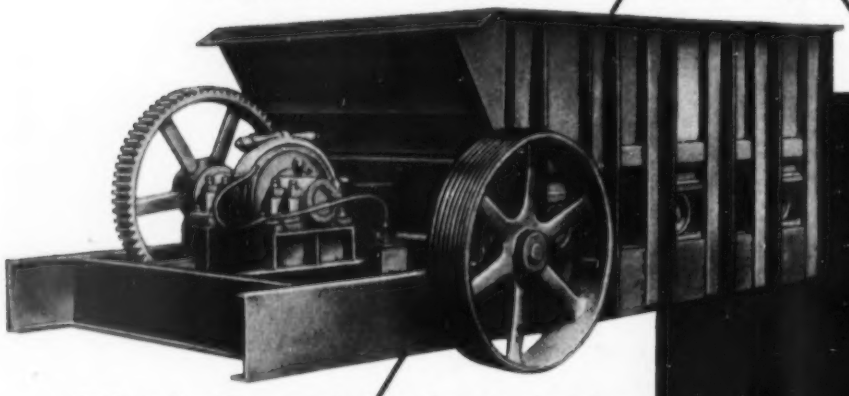
EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.

EASTON

A Great Combination..

For Low Cost Handling and Crushing Operations!

A combination of McLanahan Reciprocating Plate Feeder and Rockmaster Crusher is your answer to most economical feeding and crushing of 1000 tons or more of limestone, ore or rock per hour. Equipment can be furnished as component parts or as separate units to best suit your application.



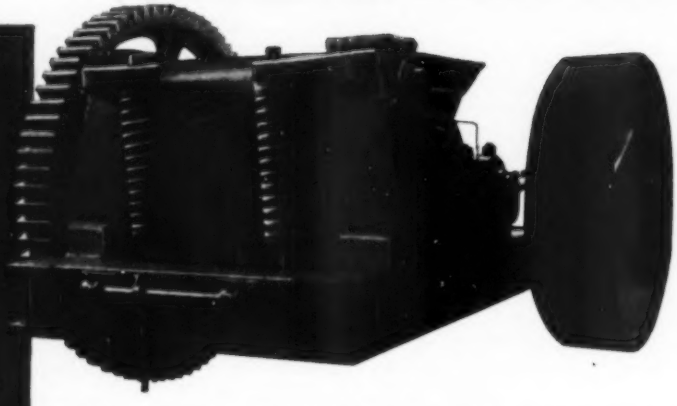
1

Heavy Duty

Built to handle materials from the size of sand to shovel-loaded rock, McLanahan Adjustable Reciprocating Plate Feeders automatically control the rate of flow of material, and are quickly adapted to the producing capacity of any machine.

2

Single Roll



The McLanahan Rockmaster Crusher is the economical solution to most any crushing problems. Greatest savings can be achieved by this combination of equipment. Outstanding for primary and secondary crushing operations, for use on limestone, gypsum, rock, gravel, shale, iron ore, slag and other materials.

Write Today

For Bulletins RM-505 and FRE-4812

McLANAHAN & STONE CORPORATION

Pit, Mine and Quarry Equipment Headquarters

Hollidaysburg, Pennsylvania

Dependable Products: **Single and Double Roll—and Jaw Crushers, Crushing Plants, Reciprocating Plate and Apron Feeders, Roll Grizzlies, Conveyors, Elevators, Screens, Scrubbers, Steel Log Washers, Sand Drags, Hoists, Jigs, Dry Pans, Dryers, Scrap Bundlers, Pulleys, Gears, Bearings, Sprockets, Sheaves, Rollers, Bin Gates, Elevator Buckets, Gratings, Car Wheels, Ferrous and Bronze Castings.**

Hugh McMillan's Business

...is ROCK!

Hugh McMillan has proved his Northwests in all the kinds of work *you* have to tackle. He can tell you how well a ¾ yd. Northwest Model 25 will batch an Asphalt Plant. He holds the record for production with his plant in the State of Texas. And Rock? Here's his new Northwest Model 6 in the McMillan Quarry at El Paso—the sixth Northwest in his fleet!

With a *real* Rock Shovel, quarry output is no problem and when you have a real Rock Shovel *you never have to worry about output in any kind of digging.*

Performance and output are the reasons for repeat orders in the hands of successful outfits like Hugh McMillan. It can be a guide to your Shovel, Crane and Dragline purchases that you can count on. Why not talk to a Northwest Man?

NUMBER SIX
NORTHWEST
for HUGH McMILLAN
El Paso, Texas

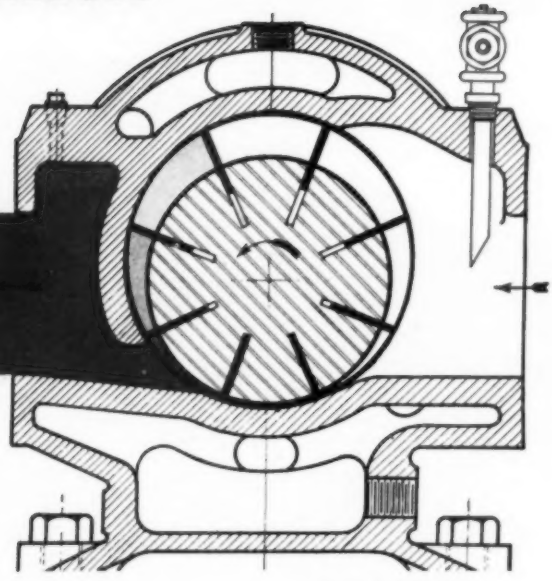
NORTHWEST ENGINEERING COMPANY
135 South La Salle Street • Chicago 3, Illinois

NORTHWEST

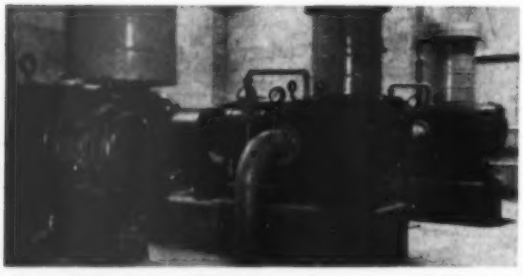
SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem

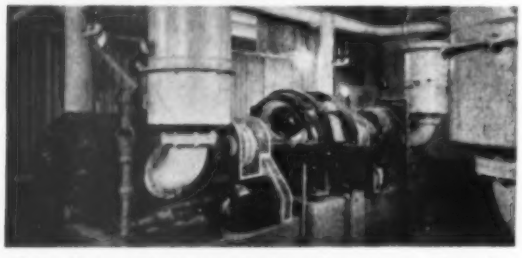
Fuller Rotary Compressors put the SQUEEZE on compression costs



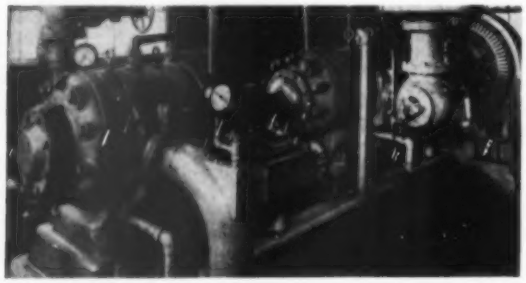
...for pressures up to 125 lb.



Three Fuller Rotary Single-stage Compressors. Capacity each 1400 c.f.m., 19-lb. pressure.



Fuller Rotary Single-stage Duplex Compressor. Capacity 2010 c.f.m., 35-lb. pressure.



Fuller Rotary Two-stage Compressor. Capacity 1665 c.f.m., 100-lb. pressure.

When you consider all the many uses you have for compressed air, you should give careful thought to the best way to get compression with dependability, plus minimum cost and attention—selection of the proper compressor at the required pressures to do the work in the most efficient manner. Fuller builds the compressor that has *earned* a reputation for dependability and long life—for pressures up to 125 psig.

Fuller Rotaries have so many inherent advantages that they warrant your closest examination. Free from reciprocating parts, with no valves to leak or seats to grind, no unbalanced forces to set up vibration, they assure low-cost, smooth-flow operation during their long life. And, they give you *original, maintained capacity*.

Check your compressed-air needs . . . a Fuller engineer, specializing in compressed-air engineering, will give you the *right* recommendation to enable you to produce air efficiently, and at the lowest possible cost. Write now.

FULLER COMPANY, Catasauqua, Pa.

Branch Offices

Chicago • San Francisco • Los Angeles • Seattle • Birmingham

Fuller

C-237
2157

Pioneers of high-efficiency vane-type rotary compressors

A MAJOR USER OF MULTIWALL BAGS ANSWERS A CANDID QUESTION

QUESTION:
"How have you used Multiwall Bags in your merchandising program?"

User: **DRAGON CEMENT CO., Inc., New York, N. Y.**

"THE PRINTING SURFACE ON OUR MULTIWALL BAG GIVES US AN ADVERTISING BILLBOARD"

The distinctive Dragon design identifies seven major products manufactured by this well-known company in the cement industry.

The familiar design which establishes the family relationship among Dragon products was developed by Dragon Cement personnel in cooperation with the Union Bag Art Department.

Good design, good printing, and a uniformly good printing surface make Union Multiwall Bags an extra advertising medium for your product as well as an economical container.

MORE SO EVERY DAY, IT'S

UNION *for* MULTIWALLS

UNION BAG & PAPER CORPORATION • WOOLWORTH BUILDING, NEW YORK 7, N. Y.

BIG Gyratory Crushers

THE 6th 60" GYRATORY BUILT BY TRAYLOR

"Traylored" to produce 30,000 tons per day, the latest of Traylor's super-size 60" Gyratory Crushers is on its way to the famous copper mine at Chuquicamata, Chile. This crusher is equipped with Traylor's original curved concaves and bell head.

Some idea of the weight of this gigantic machine can be judged from the relatively small eyebolt used to lift the shaft. It weighs over half a ton. The cast steel frame of the crusher is over 5" thick at several points.

Traylor built the first successful 60" Gyratory in 1919 . . . 34 years ago. It proved that a gigantic crusher with high hourly capacity could effect amazing production economies. This first 60" was sold to a Michigan limestone producer. Because of its outstanding efficiency, this same customer purchased their second 60" Traylor Gyratory four years later. Of these 60" crushers, three are in Michigan, one in Arizona, one in England and one in Chile. Capacities up to 3500 tons per hour.

A Traylor LEADS TO GREATER PROFITS

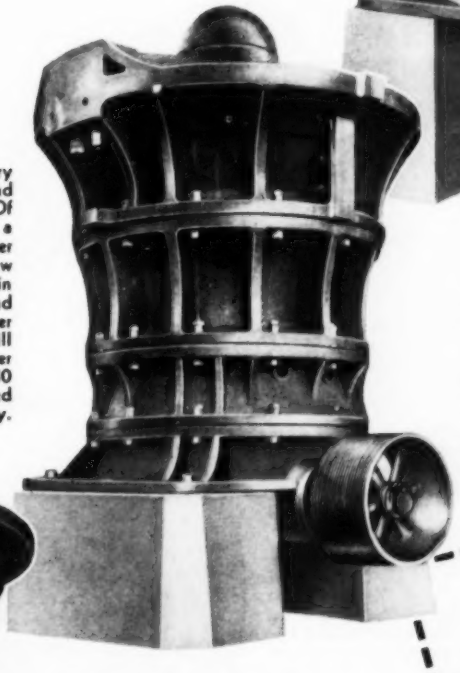
Since 1919

are "Traylor-MADE"

Result: Traylor has acquired special skills and facilities for building these big machines.

With 38 of these huge Gyratory Crushers in the field, Traylor design and construction have been proved under a wide range of operating conditions. To match this accumulated "know-how," Traylor has expanded facilities to build these big crushers with precision and efficiency. Consequently, the producer who needs 645 to 3500 tons hourly production will find the Traylor TC a crusher of unusual operating economy and dependability. Write concerning your requirements. Let us show why it pays in the long run to buy a Gyratory "Traylored" to your individual needs.

EIGHT 54" Traylor Gyratory Crushers are in the field; four in Canada, one in England, one in Mexico, one in Michigan and one in Nevada. These crushers are used to help produce cement, nickel, copper and iron. The Traylor 54" Gyratory has hourly capacities from 1400 to 2240 tons.



FOUR 48" Traylor Gyratory Crushers have been built and TWO are in the works. Of those in the field, one is in a Pennsylvania ore mine, another is crushing trap rock in New Jersey, still another is in Minnesota on iron ore and the fourth in Nevada on copper ore. The two in the works will be crushing iron ore and copper ore. Capacities up to 1980 tons per hour are obtained with the 48" Traylor Gyratory.

EIGHTEEN 42" Traylor Gyratory Crushers are in a wide range of service. One is in Chile, two in Canada and the rest dispersed over 14 different states. The 42" Traylor Gyratory provides capacities up to 1290 tons per hour.

FOR MORE INFORMATION
mail this coupon today to . . .

TRAYLOR ENGINEERING & MANUFACTURING CO.
1526 MILL ST., ALLENTOWN, PA.

Send me complete facts about the Traylor TC Gyratory.

Name: _____

Position: _____ State: _____

Company: _____

Address: _____

Sales Offices: New York • Chicago • San Francisco
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.Q.

Traylor has built 38 of the world's biggest crushers

"Attach the detonating cap properly . . . Primacord will do its job safely, effectively

"This is the last job before the blast. Holes are loaded with a branch line in each one. You've laid your trunk line and connected your branch lines at right angles to it. Men and machines have been removed. You've checked and double-checked – everything's ready.

"*Now* attach the detonating cap to the Primacord. Up to this point, your blast – hooked up with Primacord – cannot be set off by sparks, friction, ordinary shock or stray electric currents. Primacord *must* be detonated with a blasting cap attached to one end of the trunk line.

"Place the cap and fuse alongside the end of the Primacord trunk line and bind together lightly but firmly with friction tape. Don't tie them together with string or wire – don't lay them under a rock! Place the cap gently on the ground and lay out your length of safety fuse*.

"Remember – in blasting, safety is a sign of skill. Be careful, all-ways."

Ask your explosives supplier, or write for further facts to

THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut
Also Safety Fuse since 1836

*Primacord can also be detonated with an electric blasting cap.

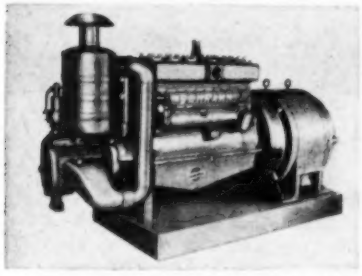
1. Cut the Safety Fuse squarely across with a clean, sharp knife to expose the powder core. Be sure you cut the fuse long enough, because a little more fuse is a lot more safety.
2. Seat this freshly cut end lightly but firmly against the charge in the blasting cap, and crimp cap onto fuse with a crimping tool.
3. Lay the Safety Fuse and its cap alongside the end of the Primacord trunk line, and bind lightly but firmly together, using friction tape. Place the cap gently on the ground and lay out your length of Safety Fuse.
THE ENSIGN-BICKFORD CO.
PRIMACORD
BICKFORD
SIMSBURY, CONN.

Use PRIMACORD®

The PROVED and APPROVED DETONATING FUSE

NEW SUPER-*Unistage* Air Compressor Offers Many Advantages

Schramm, Inc., makers of air compressors for 54 years, announces the newest in its line — a 600 c.f.m. industrial model, the Super-*Unistage*. Major advantage of this compact, vibrationless unit is its super-charge design, which puts it in a class all by itself and answers the industry's demand for such a model.



Noteworthy advantages are offered by the Super-*Unistage*. For here has been designed a large capacity compressor which at the same time is compact, vibrationless, adaptable to the unit-system installation whereby multiple power can be provided by operating the series of units, or a single or several units when peak air loads are not required.

Tailor-Made for Economy, Larger Air Capacity

Before purchasing any air compressor, it is quite natural to investigate its purchase price, maintenance, upkeep and installation costs. Here, in one package, you have the answer to your search for economy.

Its price is in keeping with the air it supplies . . . there is practically no installation cost since no elaborate foundation is required . . . and its maintenance is low.

Features

The Schramm Super-*Unistage* is a 150 h.p. six cylinder model having mechanically operated intake valves with the patented Schramm intake valve unloaders, large diameter cushioned low lift discharge valves, seven main bearing crankshaft with pressure lubrication to all bearings.

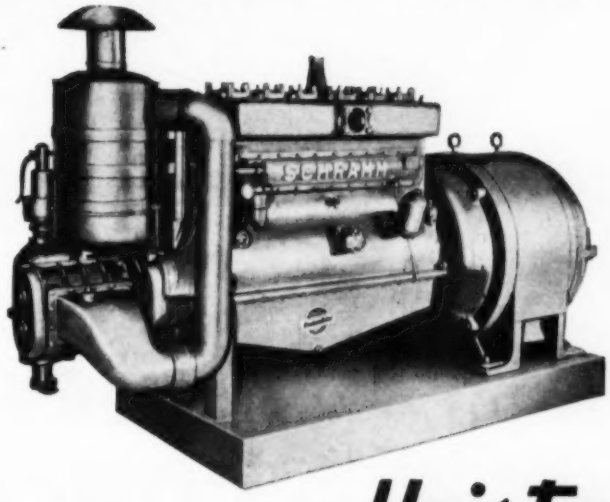
The unit is available with either an intercooler of a tubular type heat exchanger, with the water passing from the intercooler through the compressor jackets (as shown in illustration) or with the Schramm cooling unit, radiator type, in which the intercooler is an air-cooled unit with fan.

The model illustrated has 440 volt, 3 phase, 60 cycle, low starting current, normal torque, induction motor. Also, 208, 220 or 550 volt induction motors are available at the same price.

Other features make the unit notable.

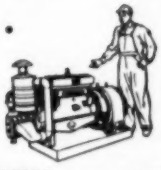
SCHRAMM, INC., THE COMPRESSOR PEOPLE, WEST CHESTER, PENNA.

Here It Is . . .
The Air Compressor You Asked for

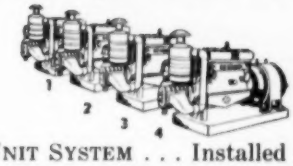


SCHRAMM SUPER-*Unistage*

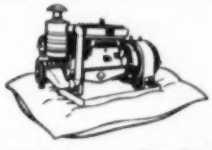
A Super-Charged 600 c.f.m. Air Compressor Designed to meet your Compressor needs for . . .



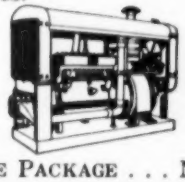
COMPACTNESS . . . requires less floor space than other models.



UNIT SYSTEM . . . Installed as a series, provides air as the air need varies.

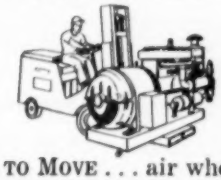


VIBRATIONLESS . . . Perfect balance of all moving parts.



COMPLETE PACKAGE . . . No extras — everything one unit!

NO ELABORATE FOUNDATION . . . sturdy floor needed — that's all!

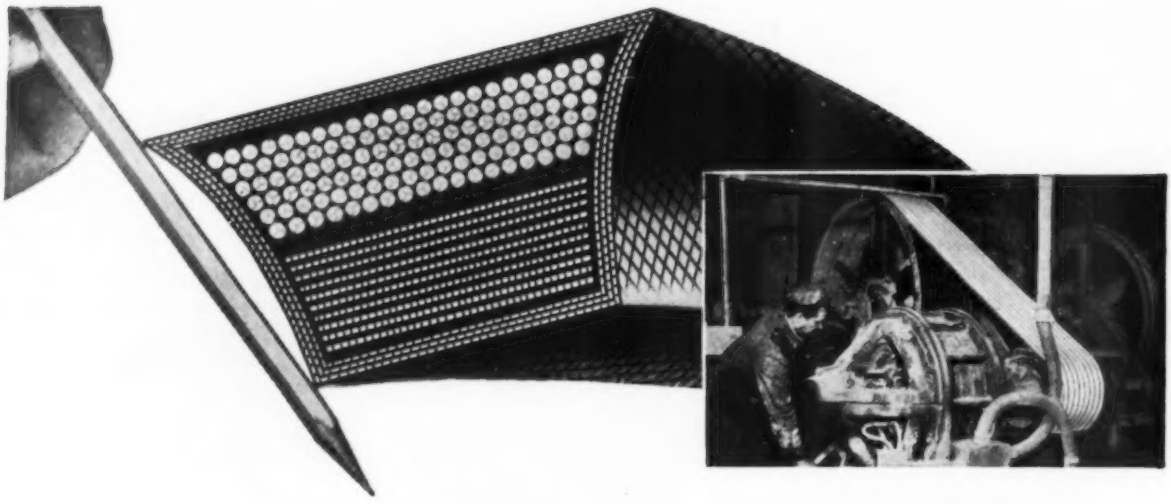


EASY TO MOVE . . . air where you need it — and want *it!*

Get full details on this new, exciting 600 c.f.m. air compressor today. Bulletin 5313 is now available. Write for your free copy.

SCHRAMM, INC.

The Compressor People • WEST CHESTER • PENNSYLVANIA



Gates V-Belts are built with CONCAVE SIDES

(U.S. PATENT NO. 1813698)

...that's why they last longer!

If you want lower V-Belt costs, just make this simple test...pick up *any* V-Belt and bend it as if it were going around a pulley.

As the belt bends, grip its sides between your fingers and thumb.

If the belt has *straight sides* you feel the sides bulge out. This forces the sides of the belt to press *unevenly* against the V-pulley . . . and you get concentrated wear at the points shown by the arrows.

Now, try this same test with the V-Belt that is built with CONCAVE SIDES —the Gates Vulco Rope.

As this belt bends, you can feel the CONCAVE SIDES *fill out* and become perfectly straight.

These sides press *evenly* against the V-pulley. All wear is distributed *uniformly* across the full width of the Gates Vulco Rope and the CONCAVE SIDES therefore mean longer belt life and lower V-Belt costs for you.

When you buy V-Belts, be sure to get the V-Belt with the CONCAVE SIDES—the Gates Vulco Rope!

Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and in 71 foreign countries.

CS-935

V-Belts—Hose
Molded Rubber Goods
for Industry
World's Largest Maker
of V-Belts

Gates® VULCO ROPE DRIVES

THE GATES RUBBER COMPANY • DENVER, U.S.A.

How an extra 1/2 inch of metal is saving crawler owners thousands of dollars

Why did so many crawler treads fracture after only a few years service?

Kensington Engineers set out to find the answer. They talked to operators . . . they investigated working conditions . . . and they studied hundreds of broken treads to find what was making them fail.

Then they put their research to work. They heavied-up supporting ribs, reinforced other highly-stressed points by as much as ½ inch, and developed ORO SUPERMANG, a remarkable alloyed manganese steel.

SUPERMANG defies abrasion by developing unusual surface hardness under impact and wear. At the same time, the softer metal underneath this ever-hardening "skin" is able to withstand impact and shock because it remains tough.

The resulting treads may not look a great deal different than the ones you are now using . . . but when it comes to *performance*, just listen to this:

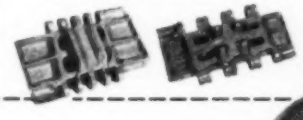
Sand, gravel, and crushed stone producers report these improved treads outlast others by as much as 4 to 1. In the coal fields, you'll find Kensington-engineered treads still going strong after more than 14 years of steady use. And up in the rugged Lake Superior mining country they have been a favorite for over 23 years.

You can buy Kensington treads to fit any standard make of shovel. Take-up tumblers, crawler sprockets, crawler rollers, and dipper-tooth points are also available in durable, wear-resisting SUPERMANG. Despite their superior performance, they cost no more than ordinary parts.

Figure what *you've* been spending for labor and replacement parts. Then use this handy coupon to find how much *you* can save by switching to SUPERMANG.

You'll be under no obligation.

Wear-Resisting, Money-Saving, Shovel Parts



Long-wearing treads to fit all standard sizes and makes of power shovels.

Crawler rollers made of wear-defying **Kenseloy.**

Dipper teeth of various sizes and designs that stand up under most severe digging conditions.

Kensington STEEL COMPANY

KENSINGTON STEEL CO., Dept. P, 505 E. Kensington Ave., Chicago 28, Ill.

SUBSIDIARY OF POOR & COMPANY • CHICAGO

☐ Quote Prices ☐ Have Representative Call ☐ Send Literature

Description of Part_____

Make of shovel or dragline_____ Model_____

Casting No._____ No. per set_____ Over-all width_____

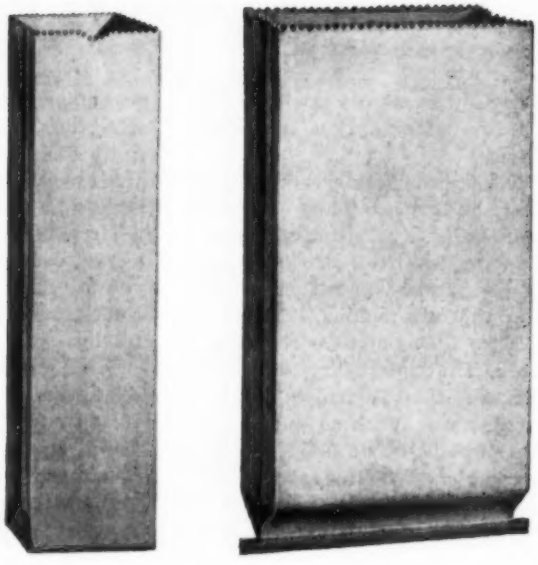
NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Do You Pack Mineral Wool Loose or in Batts?



Then you need a multiwall bag that can pack, stack, show, ship and empty your product—easily, economically and dependably. In fact you need a Bagpak bag—designed to solve all the problems of handling your light weight but bulky insulating materials—from factory to user.

Write for complete information about Bagpak bags for all light weight aggregates... Bagpak Division, International Paper Company, 220 East 42nd Street, New York 17, N. Y., Dept. Q-13.

Ask about "Airex" Bagpak Multiwalls for batts—or other light weight, bulky materials, sized to suit your product. Sewn Open Mouth, and SOS (Automatic) Bag, of 4 cubic feet and larger capacity are currently being used by America's largest manufacturers.

International Paper COMPANY

BAGPAK DIVISION

BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston • Chicago • Cleveland • Denver Detroit • Kansas City, Kansas • Los Angeles • Minneapolis New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • Wooster, O. • In Canada: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto.

BETTER LOADING

"The job called for more tonnage than we'd ever moved before so we picked the EIMCO 104 and it did everything you said . . ." Yes! when you need fast efficient loading you can't beat an EIMCO. In rock, clay, sand, gravel or any combination of these materials the 104 will dig and load between 350 and 450 tons per hour — given sufficient haulage equipment.

The EIMCO does not have to turn to discharge. This feature saves wear and tear on tracks and rollers; saves time in loading, makes possible loading in narrow cuts and road cleanup jobs without interfering with traffic. EIMCO's are easier on trucks too — you can control the bucket anywhere in its travel — stop it, hold it, "dribble" the load into small trucks.

For small jobs there are other EIMCO models, seven sizes to choose from to fit every size loading job. When you want loading equipment get an EIMCO — write for information on the machine for your job now.

EIMCO A476

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES — SALT LAKE CITY 10, UTAH, U. S. A.

BRANCH SALES AND SERVICE OFFICES:

NEW YORK, 51-52 SOUTH STREET • CHICAGO, 3319 SOUTH WALLACE STREET
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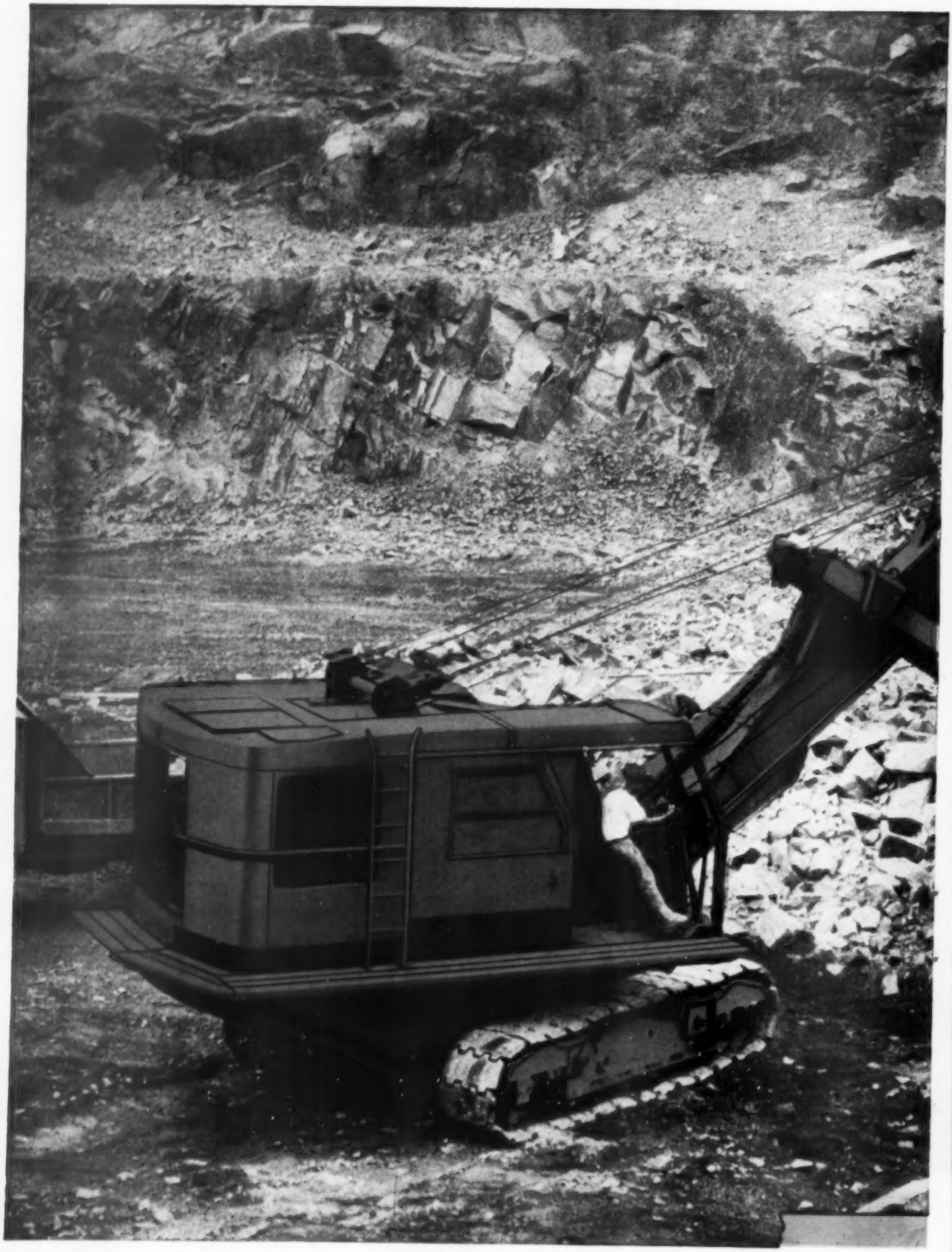
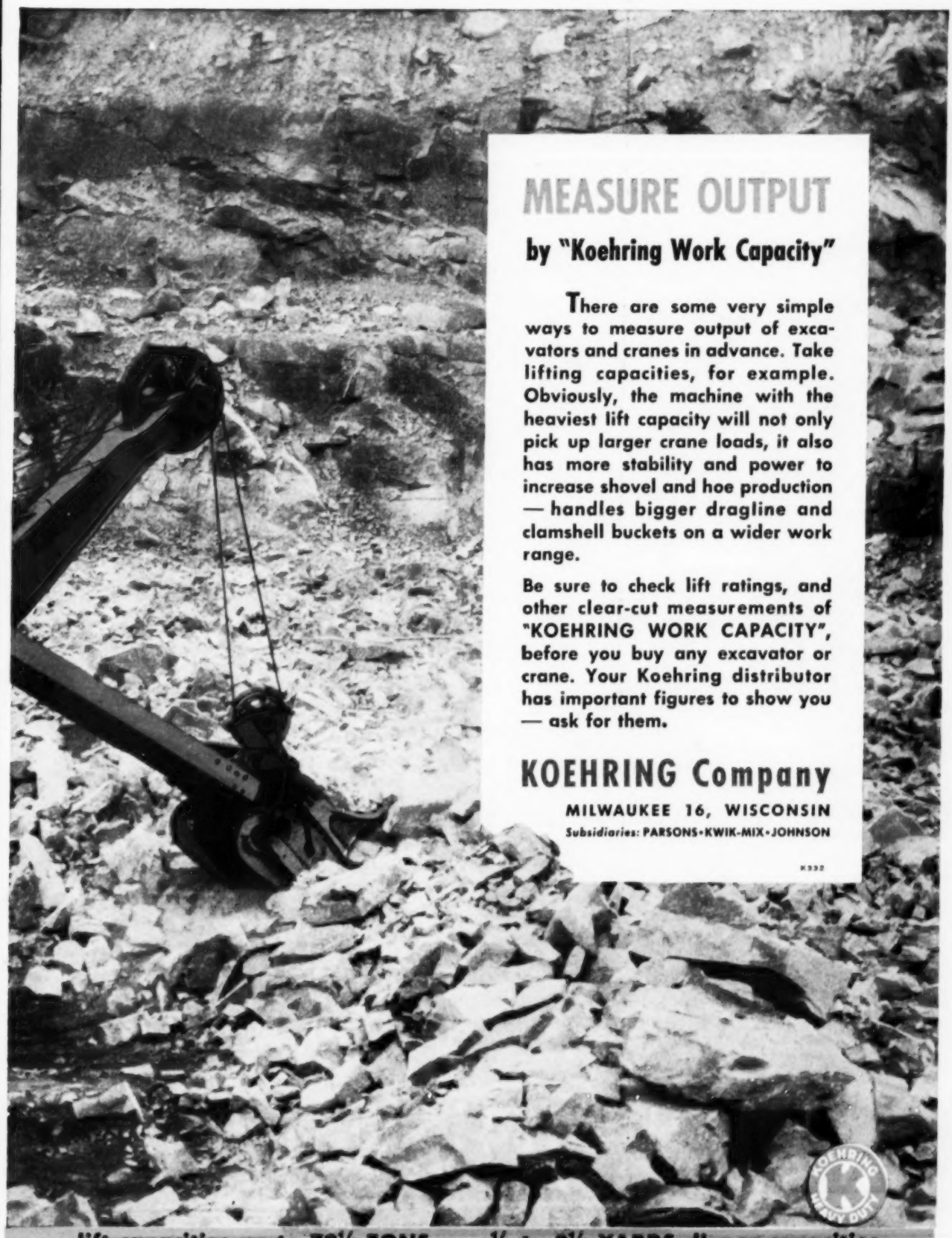
EL PASO, TEXAS, MILLS BUILDING • BERKELEY, CALIF., 637 CEDAR STREET
KELLOGG, IDAHO, 307 DIVISION ST. • LONDON W. 1, ENGLAND, 190 PICCADILLY

IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
IN ENGLAND: EIMCO (GREAT BRITAIN) LTD., LEEDS 12, ENGLAND
IN ITALY: EIMCO ITALIA S.P.A., MILAN, ITALY





MEASURE OUTPUT

by "Koehring Work Capacity"

There are some very simple ways to measure output of excavators and cranes in advance. Take lifting capacities, for example. Obviously, the machine with the heaviest lift capacity will not only pick up larger crane loads, it also has more stability and power to increase shovel and hoe production — handles bigger dragline and clamshell buckets on a wider work range.

Be sure to check lift ratings, and other clear-cut measurements of "KOEHRING WORK CAPACITY", before you buy any excavator or crane. Your Koehring distributor has important figures to show you — ask for them.

KOEHRING Company

MILWAUKEE 16, WISCONSIN

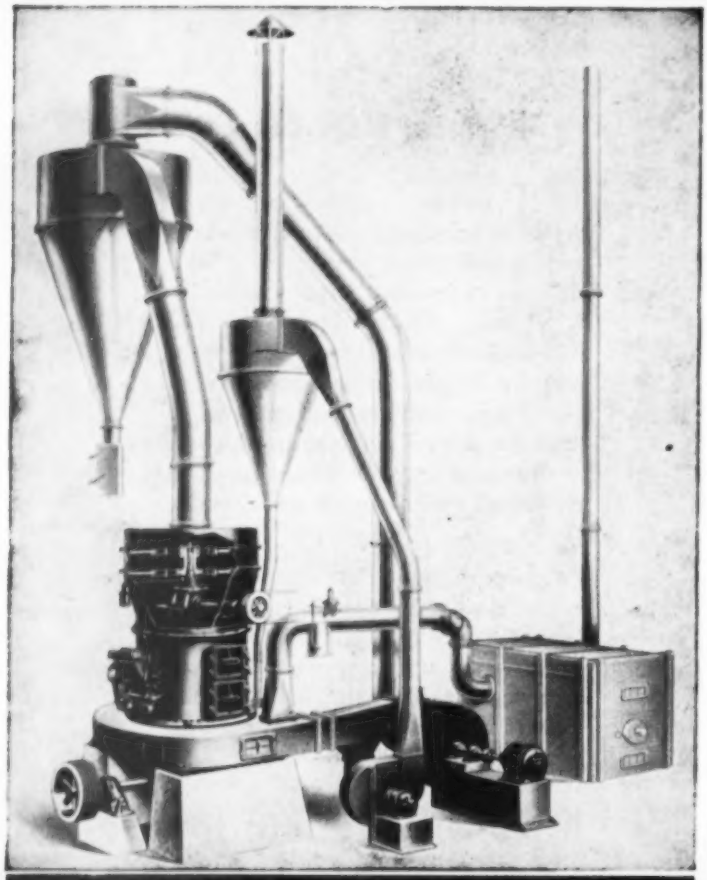
Subsidiaries: PARSONS • KWIK-MIX • JOHNSON

K332

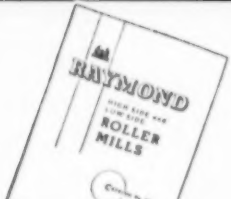
lift capacities up to 79½ TONS . . . ½ to 2½ YARDS dipper capacities

RAYMOND ROLLER MILLS

FOR FINISH-GRINDING MOST NON-METALLICS • FOR DRYING AND GRINDING SIMULTANEOUSLY



DRYING AND GRINDING—ONE OPERATION



For further details, write for Raymond Catalog No. 69

When equipped with Flash Drying accessories, as shown above, the Raymond Roller Mill can handle materials containing as high as 10% to 15% initial surface moisture, as for example in pulverizing limestone.

The material is dried simultaneously while grinding, and the moisture content reduced to less than one per cent, producing a fine, dry, free-flowing product.

RAYMOND Roller Mills are built in such a full range of types and sizes that they cover practically the whole field of application in the finish grinding of non-metallic minerals.

For more than half a century, the leadership of Raymond Roller Mills has been maintained by a consistent record of economical production in all conditions of service.

The wide preference for these machines is based on their ease of control, clean dustless operation, and automatic handling of the material from feed hopper to finish bin without waste of material or loss of time in rehandling.

MAXIMUM MILL OUTPUT

The Raymond Roller Mill is equipped with a pneumatic feed control, which is a "production booster" that keeps the mill operating at peak capacity. It prevents underfeeding and overfeeding. It maintains a maximum "load" on the mill at all times. This is one of the reasons why Raymond Roller Mills deliver such consistent high tonnages at unusually low power costs.

TYPICAL PRODUCTS HANDLED

Raymond Roller Mills are specially adapted for pulverizing and classifying such materials as:—

LIMESTONE • GYPSUM
DOLOMITE • KAOLIN
CLAYS • BENTONITE
PHOSPHATE ROCK
FULLERS EARTH
BARYTES • BAUXITE
MAGNESITE

COMBUSTION
Raymond
PULVERIZER DIVISION
SINCE 1887

FIRST FOR EVERY GRINDING NEED

CAPACITIES UP TO 30 TONS OR MORE PER HOUR • FINENESSES UP TO 99.9% PASSING 325 MESH

SUPER ROLLER MILLS

These big machines are built for delivering capacities of 15, 20 and 30 tons or more of finished material per hour.

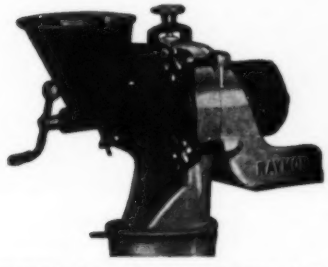
This "mass production" of fine materials is highly economical because it conserves space, centralizes operations, simplifies material handling, and insures uniformity of product.

It also offers important savings in installation, maintenance and supervision costs, as compared to a multiple mill installation of equivalent output.

Super Roller Mills may be equipped with Flash Drying System for removing small percentages of surface moisture, thus eliminating the use of separate equipment for pre-drying.

RAYMOND LABORATORY MILL

In contrast to the larger Raymond mills, the Laboratory Mill provides a small capacity unit for handling a few pounds of material at a time for experimental work or for running test samples for controlling production. It is useful for developing new products, as it delivers the same character of finished material as do the large commercial mills.



RAYMOND LABORATORY MILL
A complete motored unit assembled and mounted ready for operation.

RAYMOND SUPER ROLLER MILL
Equipped with double automatic feeders and whizzer separator with individual variable speed drive.

ENGINEERING, INC.

1321 NORTH BRANCH STREET • CHICAGO 22, ILLINOIS

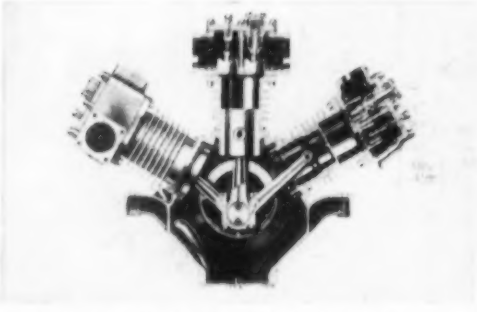
Sales Offices in Principal Cities

How long since you checked your compressor's fuel consumption?

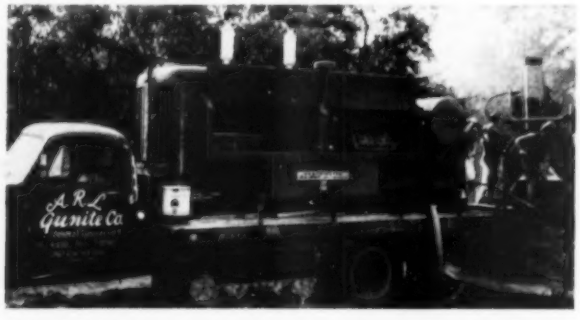
These figures will show you how Worthington Blue Brutes may save you as much as 1500 gallons of fuel during an average operating year

COMPRESSOR SIZE	ENGINE TYPE	GALLONS OF FUEL PER HOUR AT 80 PSI	GALLONS OF FUEL PER HOUR AT 100 PSI
60'	GASOLINE	1.31	1.42
105'	GASOLINE	2.16	2.35
	DIESEL	1.66	1.73
160'	GASOLINE	3.18	3.44
	DIESEL	2.45	2.60
210'	GASOLINE	4.32	4.70
	DIESEL	2.89	3.06
315'	GASOLINE	6.25	6.75
	DIESEL	4.38	4.64
600'	DIESEL	6.30	9.20

HOW DOES YOUR COMPRESSOR STACK UP in comparison with the Blue Brute for fuel economy? The figures shown have been determined under normal field operating conditions.



"SURE ARE EASY TO SERVICE." That's what we hear about Blue Brutes from mechanics all over the country No special tools or complicated disassembly procedures are needed. And compressor uses same oil as engine



PLENTY OF RESERVE HORSEPOWER is standard with the Blue Brutes. It takes thousands of hours of normal operation before engine wear affects the compressor's output This means you get full-rated output even though the engine hasn't been in the shop for a long time

Get the rest of the Blue Brute story from your nearest Worthington distributor Or write to Worthington Corporation, Construction Equipment Division, Section H.3 5, Plainfield, N J

WORTHINGTON

IF IT'S A CONSTRUCTION JOB, IT'S A ***Blue Brute*** *JOB*

H.3.5

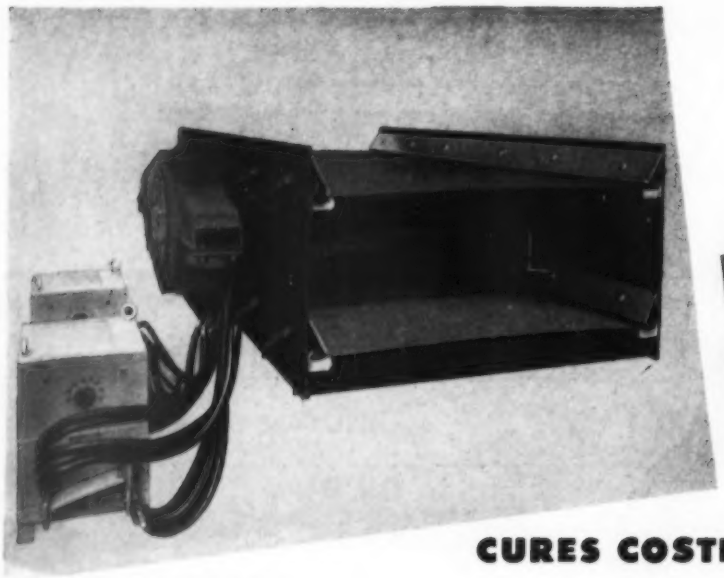
ROCK DRILLS . WAGON DRILLS . PAVERS . CONCRETE MIXERS . PORTABLE PUMPS

keen?

Keen judgement can save you a peck of trouble when it comes to picking the right line of lubricants . . . and top mining men, throughout the country, with a keen eye for increased production and fewer machinery repairs, have chosen the complete Cities Service Line. Find out about the super-performance of Cities Service Lubricants and take advantage of the free services of an expert Cities Service Lubrication Engineer. Write Cities Service Oil Company, Dept. 115, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS



HEATING NOT BEATING

CURES COSTLY SCREEN BLINDNESS

photo courtesy of Hewitt-Robins, Inc.

The practice of beating blinded screens, a temporary cure at best, runs up labor cost and causes excessive screen failure. Hanco Screen Heaters forever eliminate costly, inefficient sizing resulting from blinded screens.

SCREEN HEATING REDUCES SIZING COSTS

1. Labor cost is cut by elimination of cleaning labor!
2. Screen life is greatly extended for it is no longer damaged by manual cleaning!
3. Sizing is more accurate and faster for processing equipment can be operated at full capacity!

(Every Hanco installation has paid for itself in less than a year!)

EASY INSTALLATION ON ALL SCREEN MAKES

Hanco electric screen heaters are furnished as a complete kit—heater unit, lead cables, copper distribution and feed bars and skirt boards. All necessary small parts and complete instructions are included. Hanco units are designed to match original fittings. Speedy installation can be made by competent maintenance personnel.

HANCO QUICK-CHANGE ASSEMBLY

Available in five styles, Hanco quick-change assemblies assure easy cloth changes. Special skirt boards or tension rails incorporate a wedge type copper distribution bar that is bolted to but insulated from the rail itself. One of the five assemblies shown below is sure to fit your make of screen. Cloth changes are as easy or easier than on an unheated screen.

A-8074

HANCO SCREEN HEATER ADVANTAGES

1. Hanco heaters have a wide application for they heat brass, plain, stainless and monel steel screens.
2. Unique tap changing device allows screen temperature adjustment under load. This means added economy, for you can quickly adjust to seasonal or load demands.
3. Heater terminals are readily accessible for inspection or adjustment.
4. Compact heater units can be floor, wall or ceiling mounted.
5. There is always positive direct contact with the hook strip of the screen cloth.
6. All electrical contacts are shielded from abrasion.
7. Cloth changes are as quick and easy as they are on unheated screens.

HANCO HEATERS ARE AVAILABLE ON MOST NEW SCREEN EQUIPMENT

Send today for descriptive bulletin

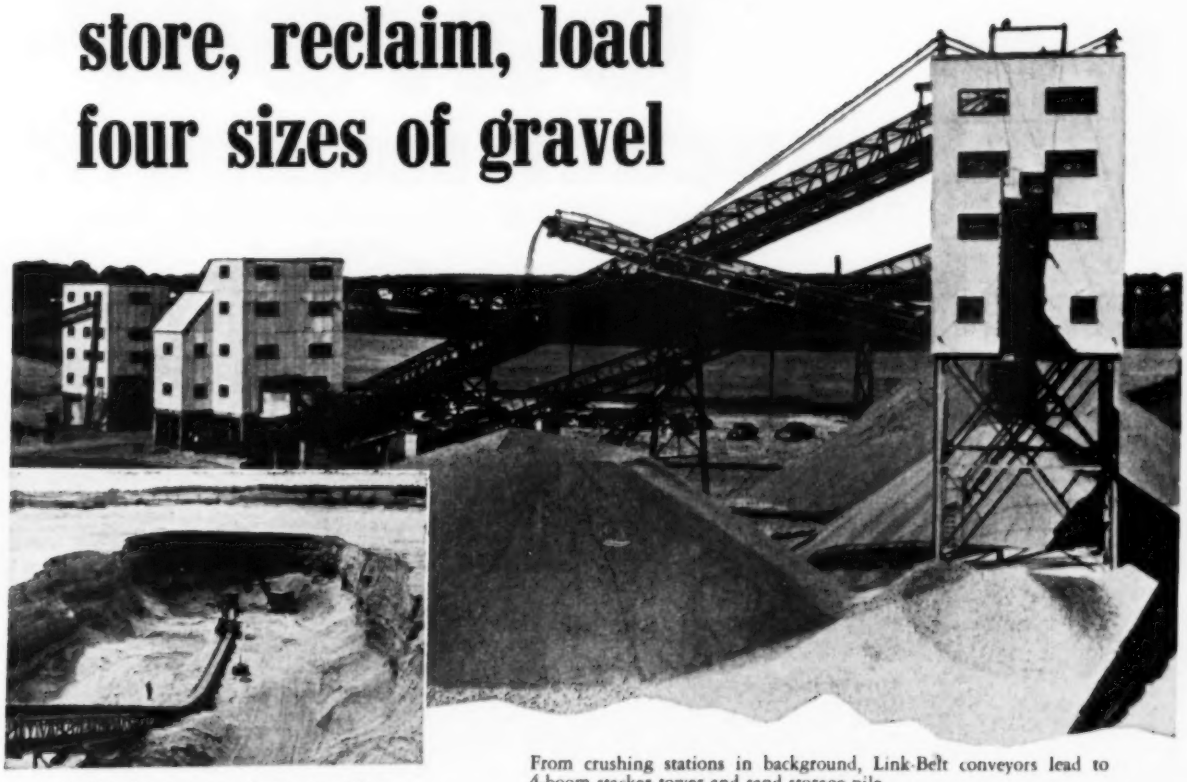
Hanco

the pioneer electric screen heater

F. R. HANNON & SONS • CANTON 7, OHIO

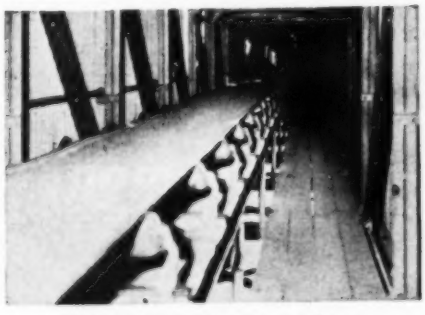
Engineers & Manufacturers Since 1926

Here's an efficient way to store, reclaim, load four sizes of gravel



From crushing stations in background, Link-Belt conveyors lead to 4-boom stacker tower and sand storage pile.

Inclined conveyor raises material from pit to primary crushing building.



Reclaim conveyor in main tunnel running to top of 4-bin loading tower.

Four loading tower bins are supplied with sorted gravel by conveyors.

Two LINK-BELT belt conveyor systems move 350 tph from pit to rail head at Consolidated Sand & Gravel Ltd., Paris, Ontario

MOVING sand and gravel from pit to stockpiles . . . then from storage to loading — two Link-Belt belt conveyor systems provide efficiency plus flexibility at this gravel plant. Producers everywhere have learned to expect this superior performance from Link-Belt.

Not only for conveying — but for feeding, washing, classifying and screening as well — Link-Belt offers dependable equipment . . . applied with the expert knowledge gained on many installations. For a reliable analysis of your handling and preparation requirements, call the Link-Belt office near you today. You'll get the benefits of an unrivalled breadth of experience and equipment. Also send for Catalog No. 2126.

LINK-BELT

CONVEYING & PREPARATION MACHINERY

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle; Scarboro, Toronto and Elmira, Ont. (Canada); Springs (South Africa); Sydney (Australia). Sales Offices in Principal Cities. 13.341

Barber-

BUCKET LOADER . . .

MODEL 543

SAVES man power-truck time-money

LOADS all free-flowing materials at 3 yrds. per minute

Cost studies prove that nothing can compete with a Bucket Loader in lowest cost loading from stock piles to trucks.

The B-G constant flow principle virtually eliminates the human element — guarantees the same hourly production all day long, whether the operator is fresh or tired out.

The new Barber-Greene Model 543 is the last word in loading economy. Backed by over a billion cubic yards handled by its predecessors, this machine is ready to cut your loading costs.

The new hydraulically controlled trimmer-conveyor combines with time-proved B-G advantages — such as the Spiral Feed, Cleanup Scraper, automatic Overload Release and Floating Boom — to save appreciable manpower on every job. With its 15 m.p.h. road speed, the 543 can get to the job fast and move from pile to pile in a hurry. It is built for high production through years of low-cost service. In addition, it is convertible to a Snow Loader for year-round usefulness.

see your BG distributor

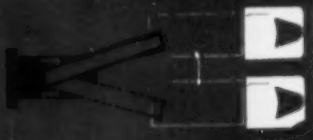
Greene

for lowest cost per yard-in-truck

THE ONLY LOADER WITH TIME-SAVING

HYDRAULIC TRIMMER

NEW VERSATILITY



NEW ROADABILITY

send coupon for details

Today, with manpower and truck time becoming more and more costly, the B-G 543 Loader offers you a proved way to save money while speeding up your loading operations. Use this coupon to get full information and start planning for the day when you'll have a Model 543 cutting your costs.

BARBER-GREENE COMPANY

AURORA, ILLINOIS, U.S.A.

BARBER-GREENE COMPANY 194
AURORA, ILLINOIS

Send bulletin on the 543 Loader. ☐

Please have representative call. ☐

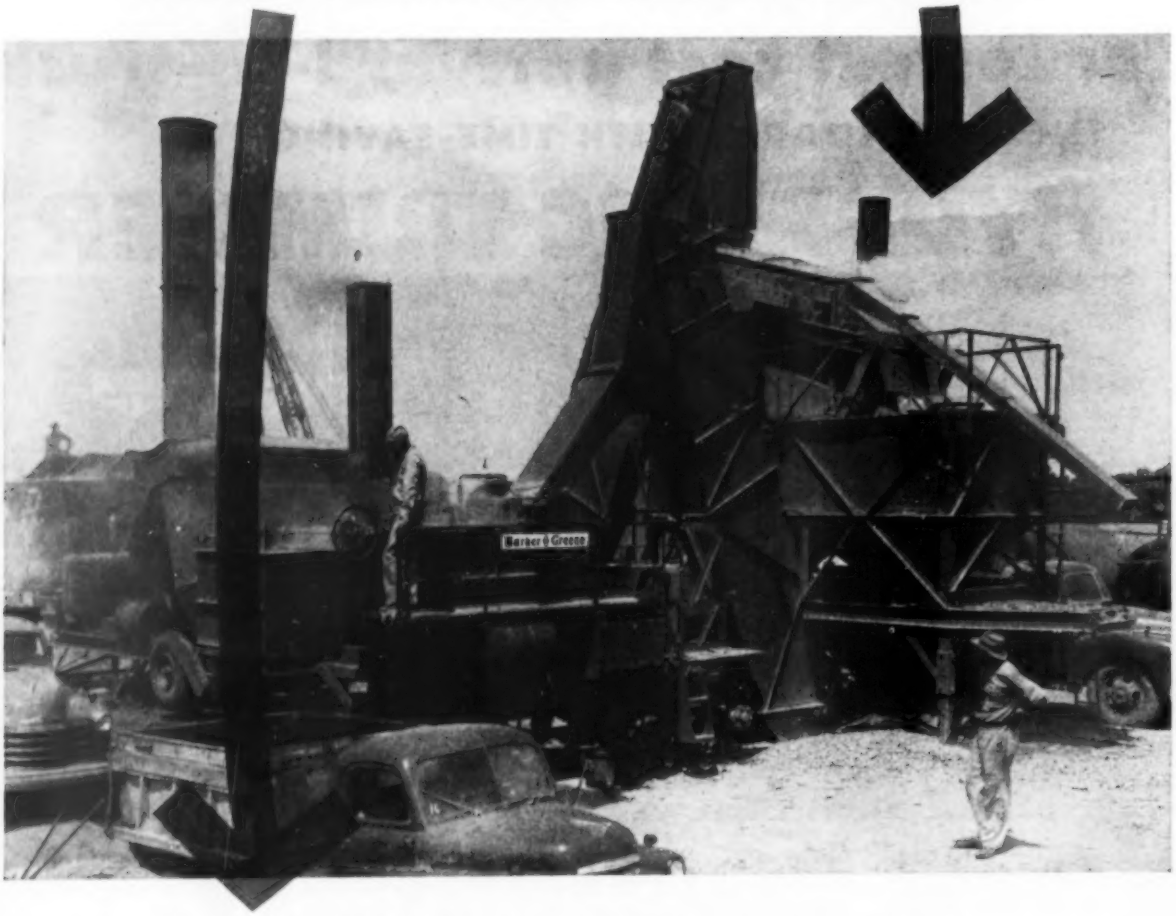
Name .....

Firm Name .....

Address .....

City ..... State .....

SIMPLICITY GYRATING SCREEN— A VITAL COMPONENT IN THE EFFICIENT BARBER-GREENE 848 BITUMINOUS PLANT



The Barber-Greene 848 Plant is well known to road construction men for fast, efficient production of the finest bituminous mix. And no wonder. For the aggregate fed into the plant is sized and separated on a Simplicity Model BH Enclosed Gyrating Screen. This 3½ Deck Screen has a rated capacity of 100-120 tons per hour, but in actual operation, it consistently handles aggregate at a much higher rate. Simplicity single, double and triple deck Gyrating Screens are available in a number of sizes to screen and separate materials fast and accurately. Maintenance and operating costs are unusually low. For complete information about Simplicity Screens, Os-A-Veyors and other equipment, consult a Simplicity sales engineer or write us today.

128

- Sales Representatives In All Parts Of The U.S.A.
- For Canada: Canadian Bridge Engineering Company, Ltd., Walkerville, Ontario
- For Export: Brown and Sites, 50 Church Street, New York 7, N. Y.

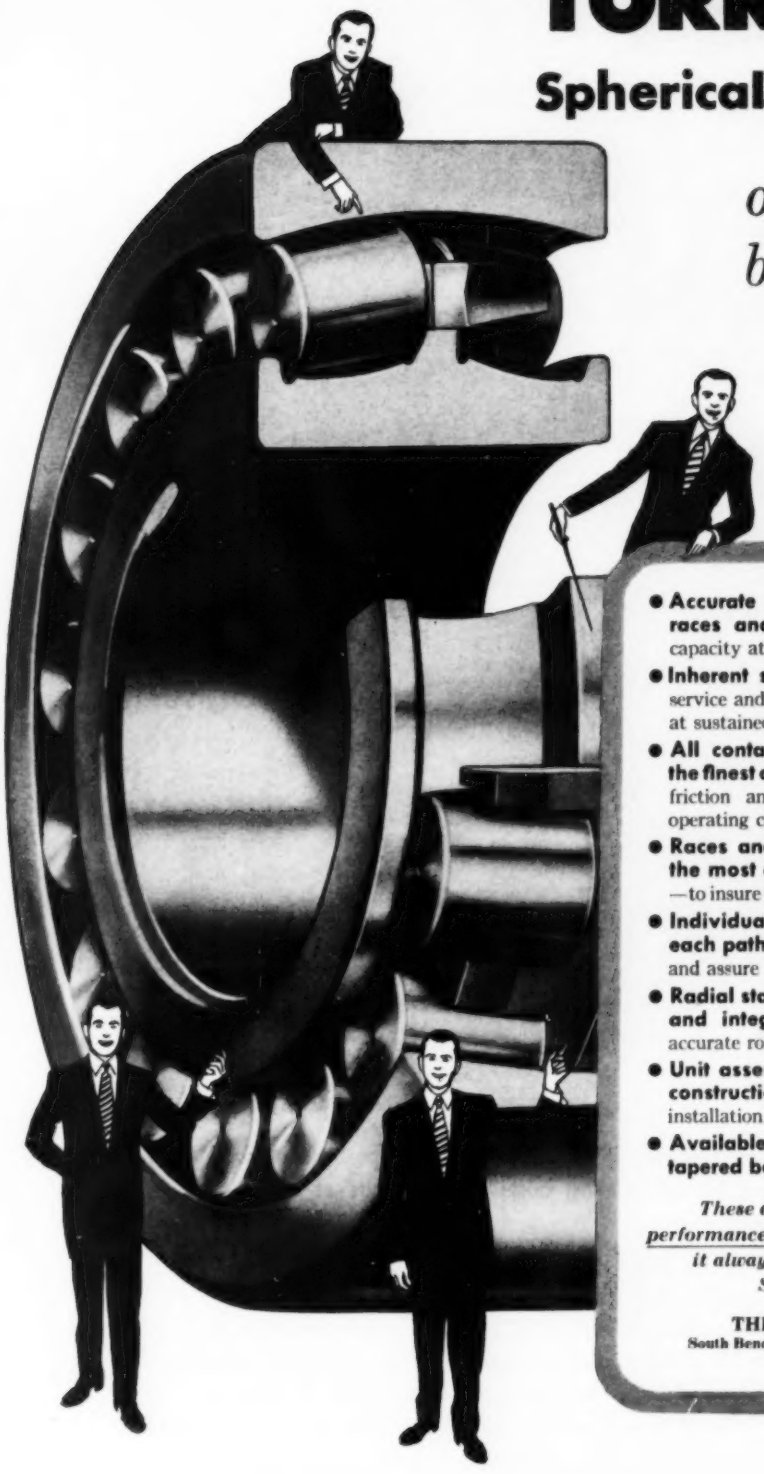
Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND, MICHIGAN

TORRINGTON

Spherical Roller Bearings

offer you these basic advantages!



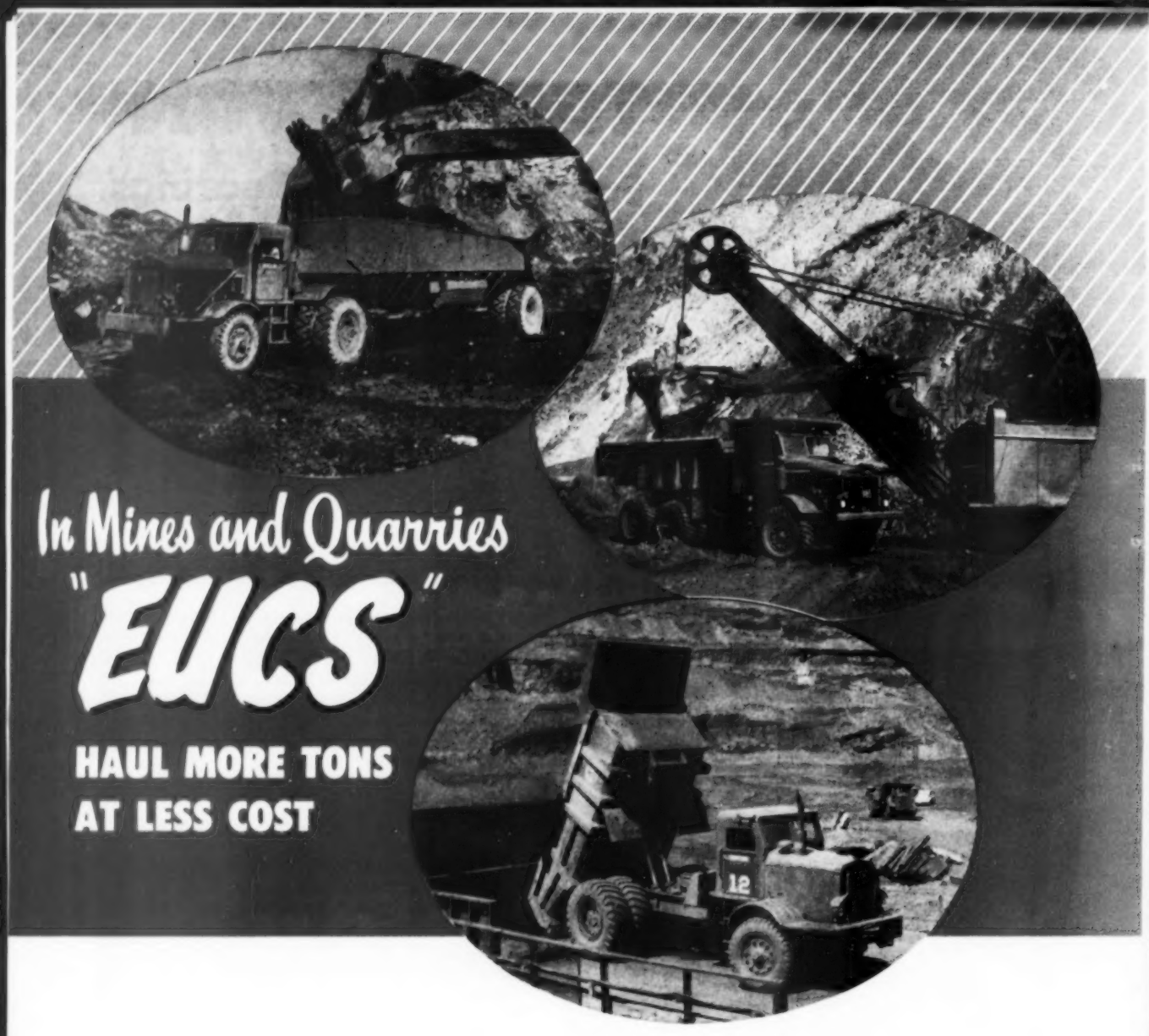
- **Accurate geometrical conformity between races and rollers**—for maximum load bearing capacity at all times.
- **Inherent self-aligning feature**—for continuous service and free-rolling even under shock loads and at sustained speeds.
- **All contact surfaces precision ground from the finest of bearing quality steels**—for minimum friction and maximum life under the toughest operating conditions.
- **Races and rollers heat treated according to the most advanced metallurgical procedures**—to insure uniform hardness in all load-bearing parts.
- **Individual one-piece cast-bronze cage for each path of rollers**—to eliminate roller binding and assure freedom of operation.
- **Radial stability provided by land-riding cage and integral flange on inner race**—to give accurate roller guiding.
- **Unit assembly, with sturdy flange and race construction**—for easy, economical handling during installation.
- **Available from stock with either straight or tapered bore**—for shaft or adapter mounting.

These advantages add up to maximum performance for your bearing dollar. That's why it always pays to specify TORRINGTON Spherical Roller Bearings.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.

TORRINGTON SPHERICAL ROLLER **BEARINGS**

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers



In Mines and Quarries "EUCS"

HAUL MORE TONS AT LESS COST

Built for tough off-the-highway hauling, Rear-Dump and Bottom-Dump "Eucs" have stepped up production and cut hauling costs on hundreds of open pit mining and quarry operations.

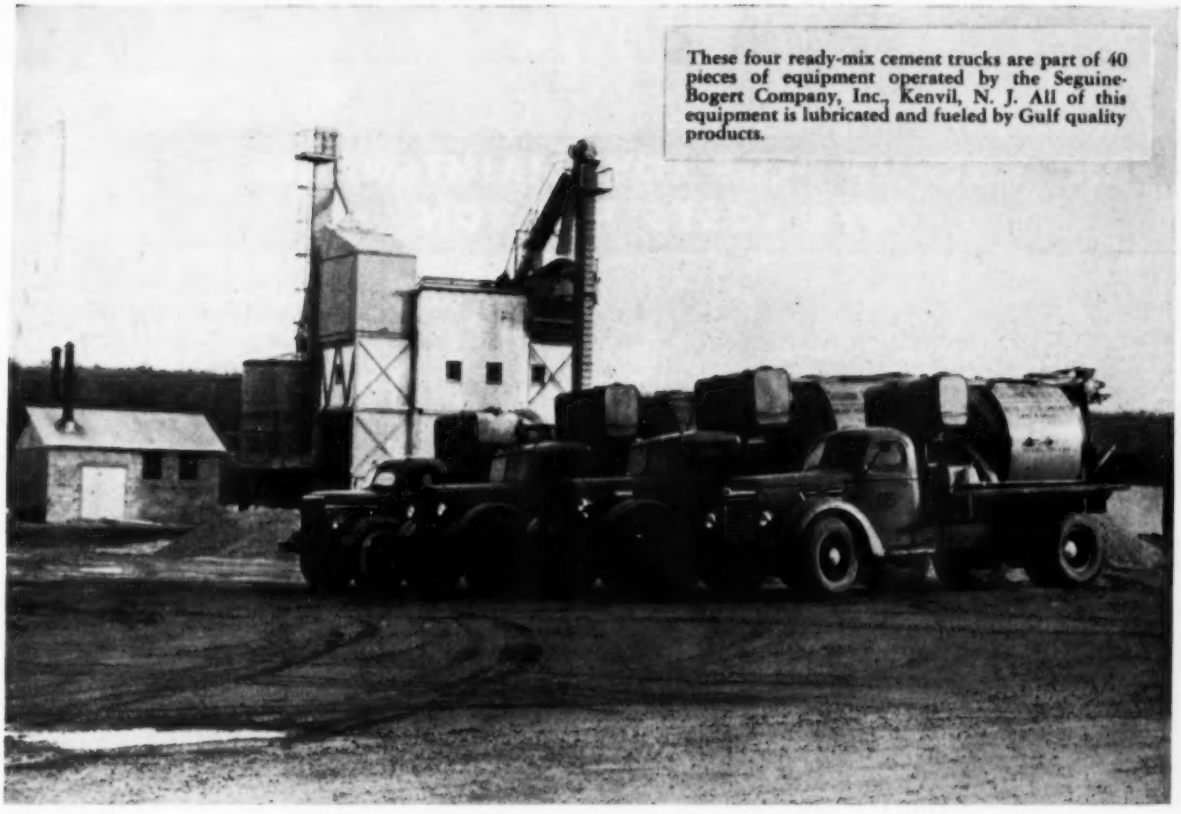
Euclids have proved their efficiency and long life in hauling a wide variety of materials . . . coal, ore, rock, overburden and other heavy excavation. Bottom-Dumps are powered by diesel engines of 190 to 300 h.p. . . . loaded speeds up to 34.4 m.p.h. . . . available in 20 to 40-ton capacities. Rear-Dump "Eucs" have travel speeds up to 36.3 m.p.h. . . . powered by diesel engines of 125 to 400 h.p. . . . range in capacity from 10 to 34 tons.

Your Euclid Distributor has performance data on jobs similar to yours. Ask him for a Euclid hauling cost estimate — there's no cost or obligation.

The EUCLID ROAD MACHINERY Co. • CLEVELAND 17, OHIO

Euclid Equipment

FOR MOVING EARTH, ROCK COAL AND ORE



These four ready-mix cement trucks are part of 40 pieces of equipment operated by the Seguine-Bogert Company, Inc., Kenvil, N. J. All of this equipment is lubricated and fueled by Gulf quality products.

Gulf Quality Fuels *and* Lubricants

keep equipment rolling smoothly at Seguine-Bogert Company

Here's a combination that can't be beat for keeping heavy-duty truck engines operating economically and trouble-free —Gulf Quality Fuels and Lubricants.

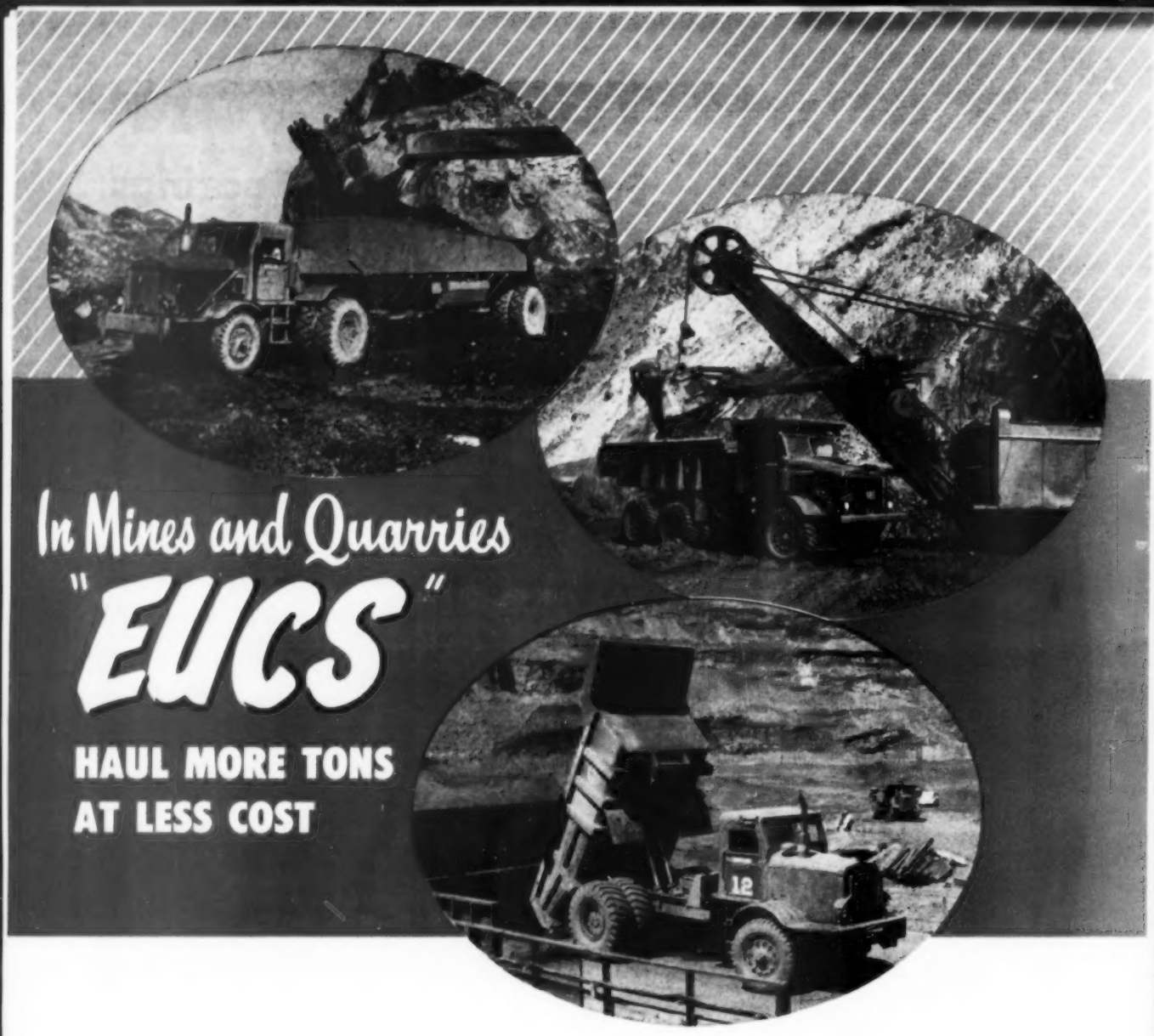
Gulf gasolines and Diesel fuels burn evenly and completely. This means less fuel deposits and a cleaner exhaust.

Gulf detergent-type motor oils keep engines clean as they lubricate efficiently. They help prevent the formation of sludge, varnish, and rust. Engines use less oil and require fewer overhauls.

These quality features of Gulf Products are reflected in higher equipment availability and lower maintenance costs. That's why so many leaders in the industry select them for their equipment. Gulf products and fine service are available through more than 1400 warehouses in 31 states from Maine to New Mexico.

GULF OIL CORPORATION • GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA

GULF SERVES INDUSTRY



In Mines and Quarries "EUCS"

HAUL MORE TONS AT LESS COST

Built for tough off-the-highway hauling, Rear-Dump and Bottom-Dump "Eucs" have stepped up production and cut hauling costs on hundreds of open pit mining and quarry operations.

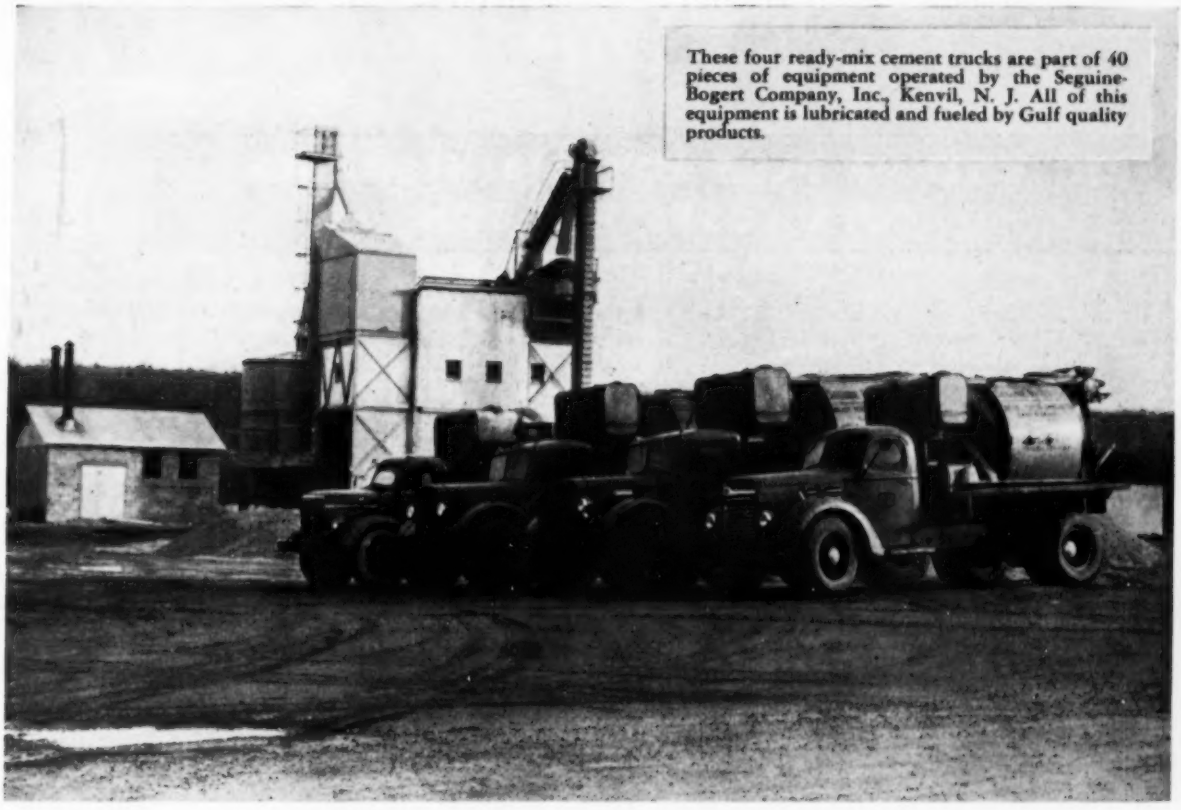
Euclids have proved their efficiency and long life in hauling a wide variety of materials . . . coal, ore, rock, overburden and other heavy excavation. Bottom-Dumps are powered by diesel engines of 190 to 300 h.p. . . . loaded speeds up to 34.4 m.p.h. . . . available in 20 to 40-ton capacities. Rear-Dump "Eucs" have travel speeds up to 36.3 m.p.h. . . . powered by diesel engines of 125 to 400 h.p. . . . range in capacity from 10 to 34 tons.

Your Euclid Distributor has performance data on jobs similar to yours. Ask him for a Euclid hauling cost estimate — there's no cost or obligation.

The EUCLID ROAD MACHINERY Co. • CLEVELAND 17, OHIO

Euclid Equipment

FOR MOVING EARTH, ROCK COAL AND ORE



These four ready-mix cement trucks are part of 40 pieces of equipment operated by the Seguine-Bogert Company, Inc., Kenvil, N. J. All of this equipment is lubricated and fueled by Gulf quality products.

Gulf Quality Fuels *and* Lubricants

keep equipment rolling smoothly at Seguine-Bogert Company

Here's a combination that can't be beat for keeping heavy-duty truck engines operating economically and trouble-free —Gulf Quality Fuels and Lubricants.

Gulf gasolines and Diesel fuels burn evenly and completely. This means less fuel deposits and a cleaner exhaust.

Gulf detergent-type motor oils keep engines clean as they lubricate efficiently. They help prevent the formation of sludge, varnish, and rust. Engines use less oil and require fewer overhauls.

These quality features of Gulf Products are reflected in higher equipment availability and lower maintenance costs. That's why so many leaders in the industry select them for their equipment. Gulf products and fine service are available through more than 1400 warehouses in 31 states from Maine to New Mexico.

GULF OIL CORPORATION • GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA

GULF SERVES INDUSTRY

MAKE YOUR LOWEST BID MORE

BIG VOLUME PLUS LOW MAINTENANCE *CUTS COSTS PER TON*

To bid low, *and make a profit,* you need the best and most efficient equipment you can get . . . not the cheapest machines, but the ones which produce the most tons per hour at the lowest cost per ton.

Buy the best equipment on the market, and write off your investment by making more profit on every ton produced. For instance . . . when you can get up to 80 tons per hour *more* from your Cedarapids Commander plant than generally accepted aggregate production of equipment of comparable size . . . and if you get, say, $1.00 a ton on the market . . . then the profit on that *extra* $80 an hour is gravy, because with Cedarapids big-volume output, *there's no increase in maintenance or operating costs!*

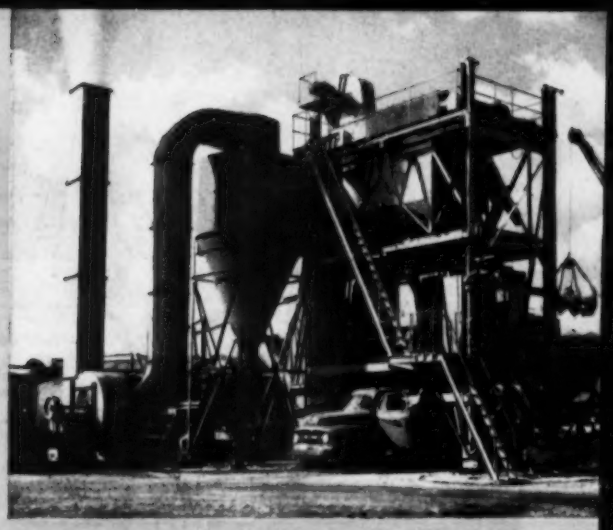
You can bank on the bonus production of Cedarapids Plants that lets you bid low . . . and make money.

Your Cedarapids distributor will gladly help you choose the plant which will give you the best production, performance and profit on your particular job. Call him today.

160 TONS PER HOUR of 1" material and 25% to be crushed with the Cedarapids Junior Tandem. This highly portable plant has the versatility to handle a wide range of gravel crushing and screening operations at low cost.
MORE MONEY ON THE LOWEST BIDS
600 TONS PER HOUR! That was average production of the Cedarapids Model 5360S Double Impeller Impact Breaker on a New Jersey job, with a peak hourly production of 734 tons! Six sizes of Double Impeller Impact Breakers are available to produce cubical shaped aggregate in any volume you need.

THE IOWA LINE *of Material Handling Equipment Includes:* ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • PORTABLE POWER CONVEYORS • PORTABLE AND STATIONARY STONE, GRAVEL AND SAND PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • DRIERS • DUST COLLECTORS HAMMERMILLS • WASHING PLANTS • VIBRATING SOIL COMPACTION UNITS • DOUBLE IMPELLER IMPACT BREAKERS

PROFITABLE WITH CEDARAPIDS EQUIPMENT



MORE PROFIT ON EVERY ASPHALTIC CONCRETE JOB

Up to two tons at a batch, plus low maintenance and operating costs, assure profitable operations on the biggest jobs when you use the Cedarapids 4000-lb. Model E Bituminous Batch Type Mixing Plants. Cedarapids Continuous Type plants with single and twin shaft pug mills meet the most rigid specifications. For smaller jobs, there's a size and type of Cedarapids bituminous mixing plant, Batch or Continuous Type, to meet every requirement. Ask your Cedarapids distributor for details.

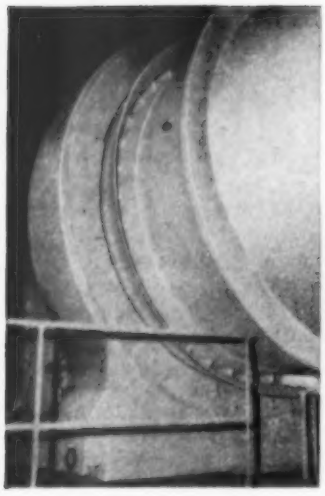
250 TONS PER HOUR of 1" material and 25% to be crushed and more, with lower crushing percentages! That's the report about Cedarapids Commander Plants from all over the country. The Commander is designed for producers who need greater output of fine crushed products, or where pit conditions put a bigger load on the secondary crusher.

200 TONS PER HOUR of 1" material and 20% to be crushed is the conservatively rated capacity of the Cedarapids Super Tandem under average conditions. The high screening capacity of this unit fills the need for a plant which can process material with high percentages of fines or excessive amounts of soil, sand, clay or semi-wet material.

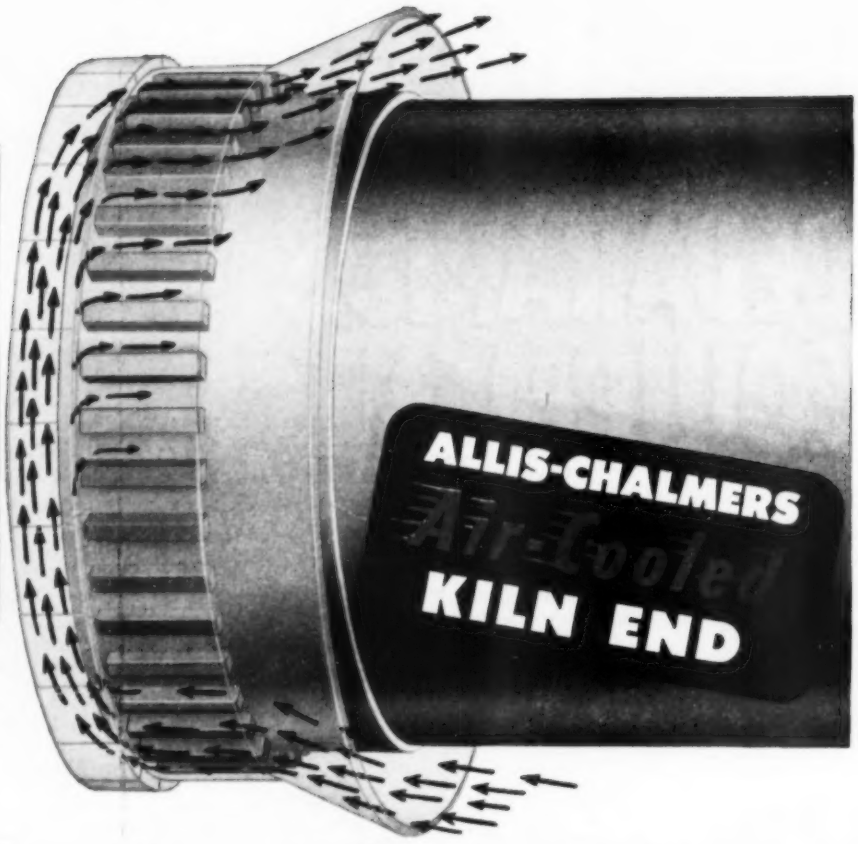
300 TONS PER HOUR of 1" material and 20% to be crushed for the Cedarapids Master Tandem, the largest, self-contained one-piece portable plant in the Iowa line. This big unit is ideal for your biggest jobs . . . and "Masters" them all.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.



Cooling air circulates around outside of kiln's discharge end, and on underside of nose castings, as shown. Rotary kilns now in operation can be modernized with installation of air-cooled end.



Pays for Itself in 2 to 3 Years

...IN REFRACTORY SAVINGS ALONE!

BIG REFRACTORY SAVINGS. . . Discharge end of kiln shell stays cool, round and rigid. Refractory brick at discharge end lasts longer because air-cooled discharge end eliminates warpage or end distortion.

BIG MAINTENANCE SAVINGS. . . Fewer shut-downs to replace end brick. Less loss of valuable production time. Savings in brick, labor and downtime will pay for air-cooled end several times over during life of kiln.

BIG FUEL SAVINGS. . . Air-cooled discharge end makes possible a positive air seal between firing hood and kiln. Temperature inside kiln is not decreased by infiltration of cold air. Result — *fuel savings!*

A-3566

Get more facts from the A-C representative in your area . . . or send for Rotary Kiln Bulletin 07B6368A. Allis-Chalmers, Milwaukee 1, Wisconsin.

A-C ALLIS-CHALMERS

ALLIS-CHALMERS

Pulverator is an Allis-Chalmers trademark.

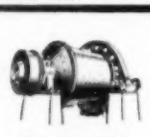
Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Pulverator

Vibrating Screens

Jaw Crushers

Gyratory Crushers



Grinding Mills

Kilns, Coolers, Dryers

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Mines Equipment, Mineral Dressing Plants, Crushing and Grinding Machinery, Cement Factories, Metallurgical Works, Coal Preparation Plants, Steel Constructions for Buildings and Bridges.
SINCE 1864
DEUTZ
Otto-, Gas-, Diesel-Engines for Every Purpose of Two- and Four-Stroke design, Output range 3-1650 H. P. Cooled by water or air, Diesel-powered tractors, Diesel locomotives, Gas producer plants.
SINCE 1864
MAGIRUS
Trucks and busses driven by air-cooled DEUTZ Diesel engines, Vehicles for municipal services, Fire ladders, fire engines, Fire fighting water trucks, Two-wheeled ladders, Fire fighting equipment.
KLÖCKNER-HUMBOLDT-DEUTZ AG·KÖLN

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GOT A TOUGH NUT TO CRACK?

Chances are your Socony-Vacuum Representative can help you!

Every so often—even in the best of fleets—a tough mechanical problem develops, one that seems to defy solution. It may be bearings going bad without apparent reason or engines suddenly becoming fuel and oil burners. But whatever the problem, you'll find your Socony-Vacuum Representative a mighty helpful friend.

In seeking the solution to your problem, he can draw on Socony-Vacuum's 87 years of experience, its vast research facilities, its staff of lubrication engineers—largest in the industry. He'll give you individual lubrication schedules—advice on correct application of lubricants—recommend the *right* lubricant for every part of every machine.

So, if a problem has *you* stumped, don't wait—call in your Socony-Vacuum Representative.

SOCONY-VACUUM

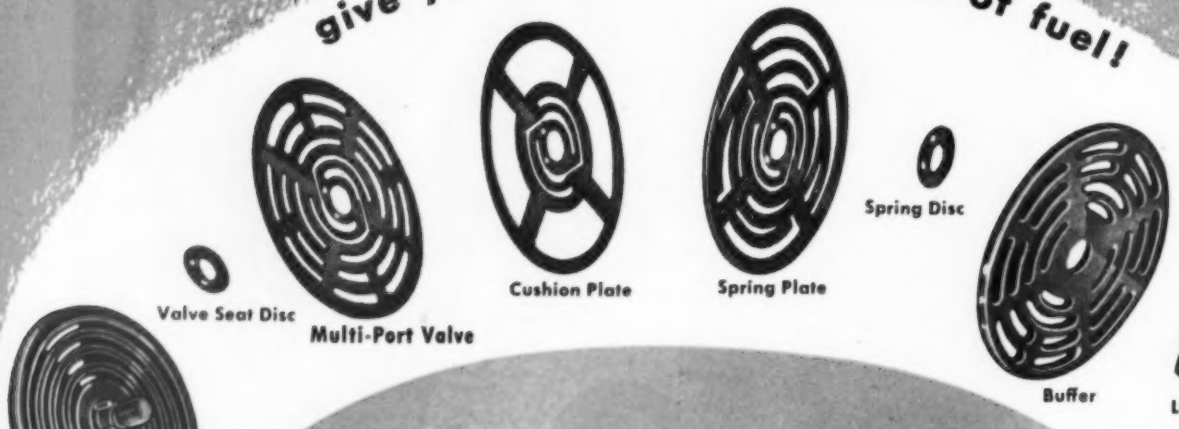
CORRECT LUBRICATION *for Contractors*

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC., MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

DAVEY COMPRESSORS with Multi-Port Valves

give you more air per gallon of fuel!



DAVEY Multi-Port Valve Assembly

Ask any owner of a new **Multi-Port Valve** Davey. He'll tell you that he is getting more air from less fuel than he ever believed possible.

Davey's new **Multi-Port Valves** set new standards of economical compressor operation. In addition, they never carbon or foul . . . do not require replacement, assure constant full air volume, keep tools operating at peak efficiency.

A-7287

Davey Super Chief 600 delivers 600 c. f. m. with minimum fuel consumption. It is lightweight, compact, easy to transport from place-to-place.

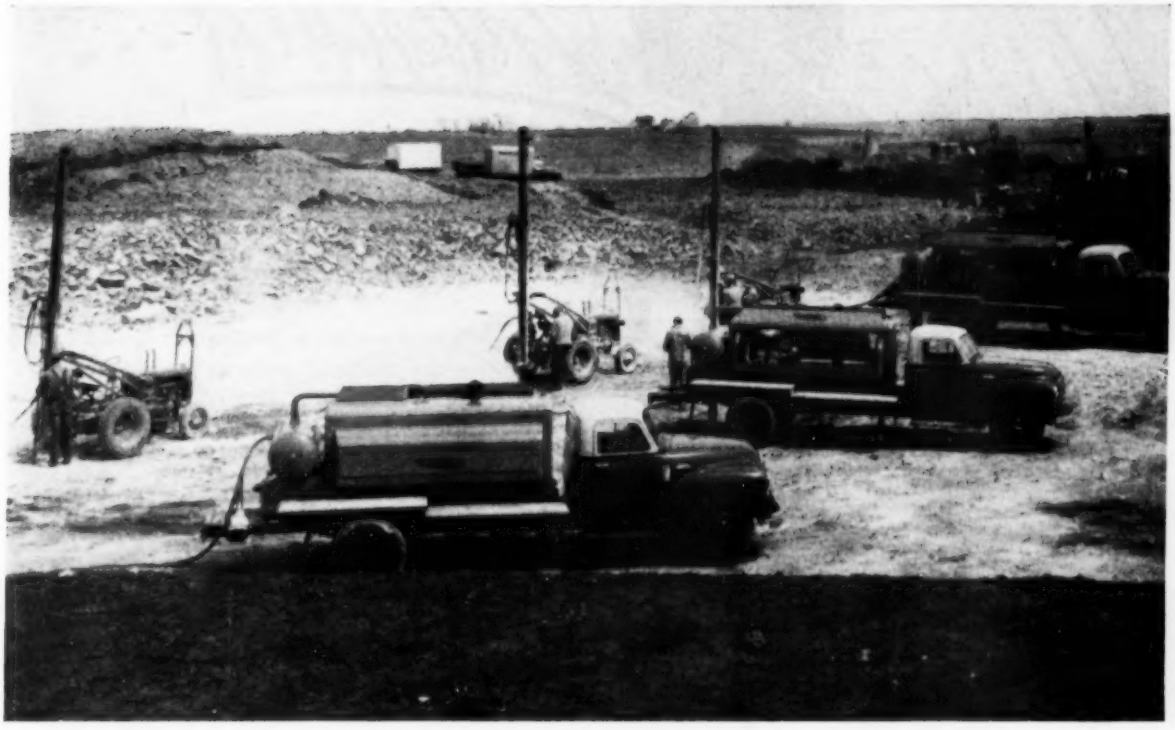
DAVEY

pioneers of "air-cooled air"

Ask your Davey Distributor for data on standard 60 to 600 c.f.m. Davey portable and industrial compressors; "Auto-Air" (truck-mounted) compressors; Mobile Machine Shops and Field Service Units.

DAVEY COMPRESSOR CO. • KENT, OHIO

Jaeger-Air now speeds operation



the fastest drilling team on wheels

Motorized for rapid movement. Each drill powered with 365 cu. ft. of air for top speed drilling and blowing

To work his 20 quarries, widely spread over five counties, Perry Jones, Carbondale, Kansas contractor and quarryman, devised this motorized fleet. The Jaeger "new standard" 365 ft. compressors are on Model 6500 Chevrolet trucks. The Thor 4" wagon drills, with enough mast for 12 ft. steel change, are on Case tractors.

Each compressor, with its drill, is a self-sufficient mobile unit, permitting the most flexible use of the equipment.

Rock ledges vary in depth up to 23 ft. The additional air delivered by the 365 ft. Jaeger compressors makes it possible to hold full 90 to 100 lbs. pressure at the tools for maximum efficiency in both the drilling and the hard blowing required. The 315 ft. compressors, previously used, could not maintain this full pressure.

Other Jaeger "new standard" capacities — 75 - 125 - 185 - 250 - 600 cfm — offer comparable opportunities to get greater production without increasing costs. See your Jaeger distributor, or send for Catalog JC-1.

"I am now operating my seventh consecutive Jaeger 'Air Plus' Compressor. This speaks for itself as to my opinion of the design and superior performance of these machines."

Perry Jones

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

TRACTOR LOADERS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS • PAVING MACHINES

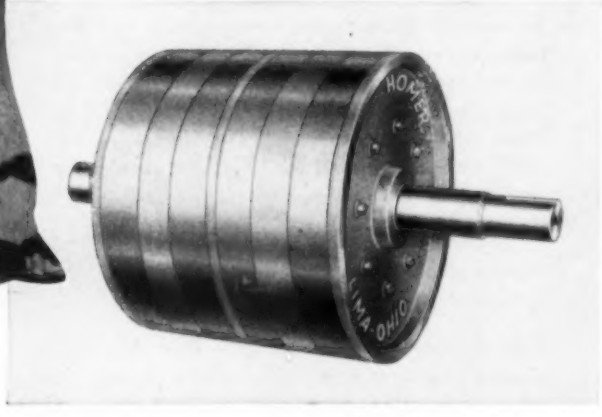
We're Interested...

in your Tramp iron problems!

Yes—we're interested in helping you cut costs, improve your production and your finished products. We're interested in helping you eliminate down-time and damaged equipment—in short, *we're interested in helping you get rid of your TRAMP IRON troubles!*

Regardless of how tramp iron affects your operations, it will pay you well to check production losses and maintenance costs which can be attributed directly to this source of trouble.

Homer maintains complete facilities for investigation and research into your magnetic separation problems. Homer maintains an efficient, nation wide staff of sales representatives, trained in magnetic protection procedure. We invite you to make use of our services. Competent recommendations made without obligation to you. The Homer Manufacturing Company, Inc., Dept.1-52, Lima, Ohio.



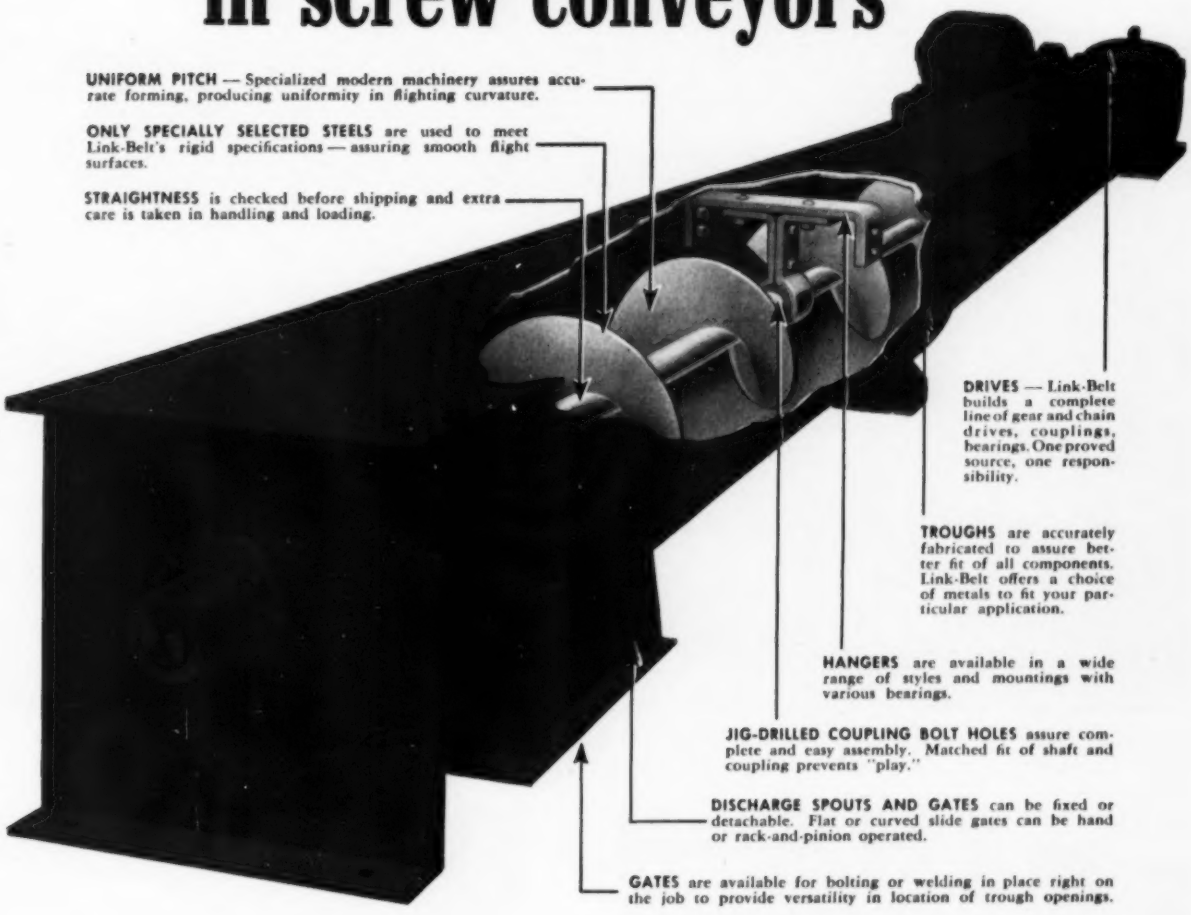
Remember...

with a HOMER...you are *Certain!*

HOMER

The HOMER non-electric magnetic pulley shown above is one of the largest permanent magnet pulleys ever built. It is 42" in diameter, with a belt width of 36". This Homer pulley is installed in a 200 foot long slope conveyor, handling Bauxite Ore up to 600 tons per hour, with a maximum belt speed of 300 feet per minute. Burden varies and at times runs to a depth of 8 inches.

There are important differences in screw conveyors


UNIFORM PITCH — Specialized modern machinery assures accurate forming, producing uniformity in flighting curvature.
ONLY SPECIALLY SELECTED STEELS are used to meet Link-Belt's rigid specifications — assuring smooth flight surfaces.
STRAIGHTNESS is checked before shipping and extra care is taken in handling and loading.
DRIVES — Link-Belt builds a complete line of gear and chain drives, couplings, bearings. One proved source, one responsibility.
TROUGHS are accurately fabricated to assure better fit of all components. Link-Belt offers a choice of metals to fit your particular application.
HANGERS are available in a wide range of styles and mountings with various bearings.
JIG-DRILLED COUPLING BOLT HOLES assure complete and easy assembly. Matched fit of shaft and coupling prevents "play."
DISCHARGE SPOUTS AND GATES can be fixed or detachable. Flat or curved slide gates can be hand or rack-and-pinion operated.
GATES are available for bolting or welding in place right on the job to provide versatility in location of trough openings.

LINK-BELT gives you sound engineering plus accuracy of manufacture for top performance

WHEN you buy a Link-Belt Screw Conveyor, you can be sure of efficient operation plus long-life, low-maintenance service. Link-Belt builds all types and sizes of components—you get the screw conveyor that's *right* for your job . . . with all components *completely integrated*. What's more, long-lasting efficiency is assured, thanks to Link-Belt's unequalled accuracy of manufacture. Let your nearby Link-Belt sales representative or distributor point out the many important differences in screw conveyors. And be sure he gives you a copy of new Book 2289.

13,277

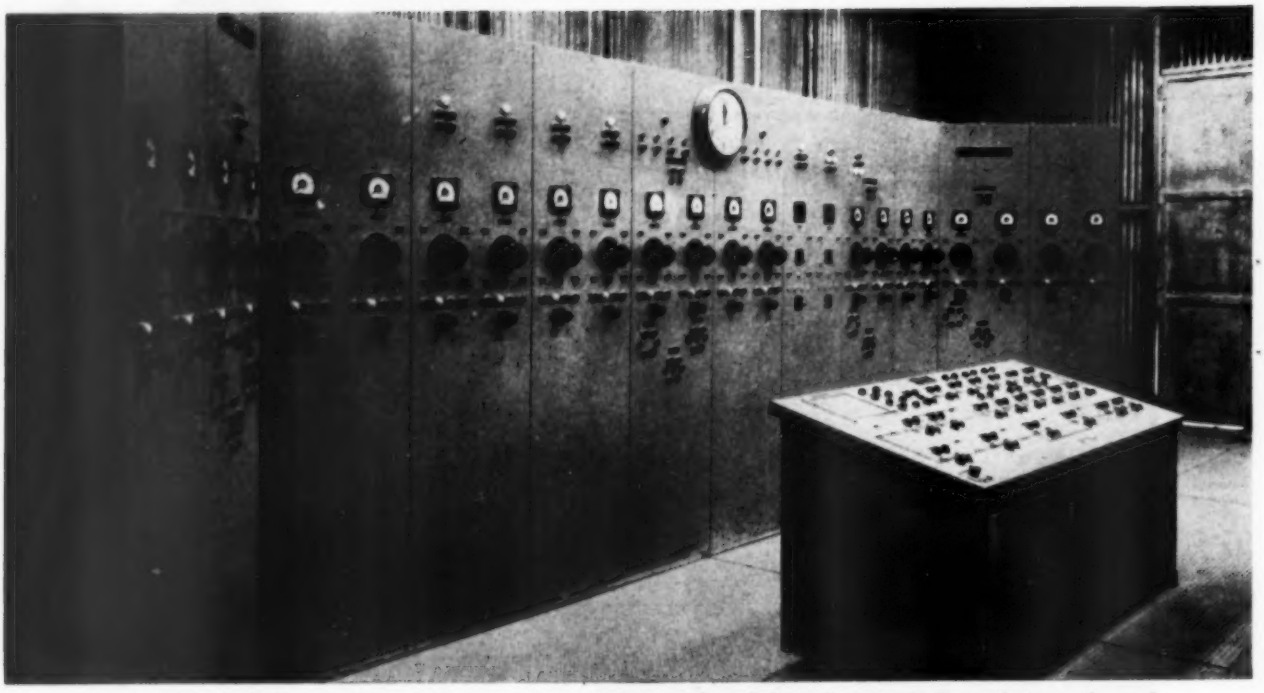
Get this complete screw conveyor book—92 pages of pre-engineered selection and application data. Ask for Book 2289.

LINK-BELT

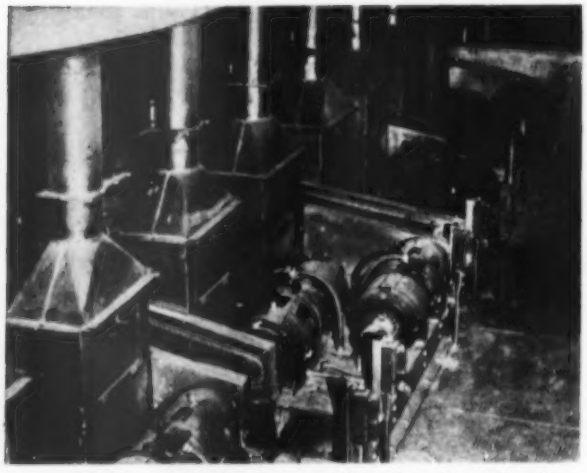
SCREW CONVEYORS

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle; Scarboro, Toronto and Elmira, Ont. (Canada); Springs (South Africa); Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

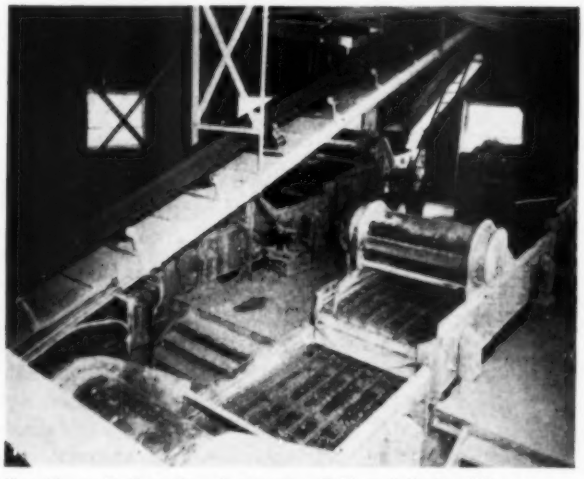
Central Control...



Central Control Room operated by one man: desk type bench board controls flow of stone through screening and blending plant—vertical panel board controls all blending and loading operations.



Drive end of 24" x 4'-6" unit type blending belt feeders showing variable speed gear motor drives and dust collection.



South end showing battery of 5' x 14' double deck Robins Eliptex Screens producing all sizes under 1".

HEWITT-ROBINS

EXECUTIVE OFFICES. STAMFORD, CONNECTICUT

Accurate Blending

Featured In New Dolese Coordinated Stone Plant

At Richards Spur, Okla., the new fully coordinated stone plant of Dolese Bros. Co. is accurately blending up to 750 tons ofl imestone per hour under the central control of only one man.

Here, all types of crushed limestone products, from derrick stone to agricultural limestone are produced and aggregates are automatically blended to meet an infinite variety of specifications. Its operation is so flexible that it can comply with any known specifications set by Federal, State, County or local agency, public or private. Its design is so flexible that it can meet almost any changing conditions to be encountered in the future.

The many problems encountered in the visualization and planning of this plant represented a challenge to engineering and manufacturing ingenuity and the challenge has been met through the combined efforts of the staffs of Dolese Bros. Co., and Hewitt-Robins, Inc.

General view of screening and blending station looking southwest showing main building, loading bins, main conveyor and recirculating conveyor to secondary crushing station.

CHECK FOR INFORMATION ABOUT THESE JOB-TESTED PRODUCTS FOR YOUR OPERATION

CONVEYORS:
- ☐ —Belt
- ☐ —Sectional
- ☐ —Mine
- ☐ —Shuttle
- ☐ —Vibrating

BELTING:
- *☐ —General Conveyor
- *☐ —Raynile®
- *☐ —Elevator
- ☐ —Woven Wire

- ☐ BUCKET ELEVATORS
- ☐ IDLERS

SCREEN CLOTH:
- ☐ —General
- ☐ —Electrically Heated

VIBRATING SCREENS:
- ☐ General
- ☐ Dewaterizers
- ☐ Heavy-Duty Scalpers
- ☐ Slip Lawn

HOSE:
- *☐ Twin-Weld®
- *☐ Servall®
- *☐ Fire
- *☐ Steam
- *☐ Air
- *☐ Water
- *☐ Pinch-Valve
- *☐ Flexible Rubber Pipe

- ☐ MECHANICAL FEEDERS
- ☐ STACKERS
- *☐ GROOVED PULLEY LAGGING
- ☐ SELF-UNLOADING BOATS
- ☐ DESIGN AND CONSTRUCTION OF COMPLETE MATERIALS HANDLING SYSTEMS

*For immediate information about these industrial rubber products, call your Hewitt Rubber Distributor. (See "Rubber Products" Classified Phone Book).

Hewitt-Robins Incorporated
666 Glenbrook Road
Stamford, Connecticut

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CIA DE CEMENTS
DE BIZEETE, TUNISIA

America, Canada, Chile, Italy, Tunisia, **anywhere** in the world that mining operations and cement manufacture call for the use of dependable, peak-capacity production machinery and equipment, you will find KENNEDY heads the list.

This typical KENNEDY installation, operating in Tunisia, has a 600-ton per day capacity. The dry process plant uses a single KENNEDY Kiln, 11'3"x 402' long, with a modern system of pulverized material storage and homogenization for kiln feed.

KENNEDY designs and builds all types of machinery from a crusher to a complete cement or mining plant to meet any problem of location, production and operation. Consult our sales-engineering department for data on any type of plant or equipment to meet your specifications or requirements.

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MANUFACTURING & ENGINEERING CORPORATION
TWO PARK AVENUE, NEW YORK
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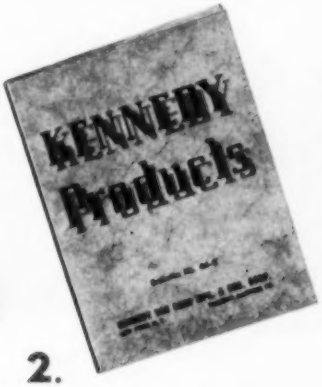
IT COSTS LESS.. TO OWN THE BEST!

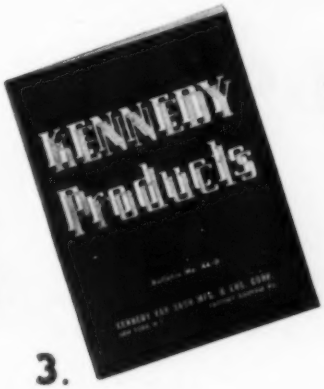
CEMENT & MINING MACHINERY
IS IN USE THE WORLD OVER!

● SEND FOR THESE AUTHENTIC BULLETINS DESCRIBING KVS MACHINERY AND EQUIPMENT!

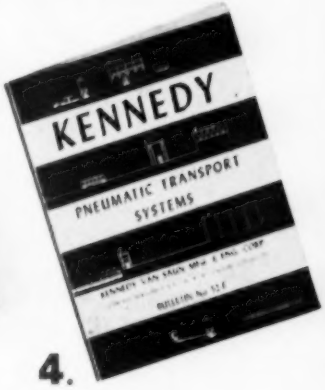
1. BULLETIN #49A
Crushers, Conveyors, Elevators, Screens, Classifiers, etc.



2. BULLETIN #44C
Tube, Ball and Rod Mills for wet or dry grinding.



3. BULLETIN #44D
Cement Kilns, Coolers, Dryers, Preheaters, Deheaters, Soaking Pits, Etc.



4. BULLETIN #52F
Automatic Pneumatic Transport Systems, Air Conveyors, Air activated Containers.

USE THIS COUPON FOR

FREE BULLETINS!

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION
2 Park Avenue • New York 16, N. Y.
***Please send me/us the following bulletins:**

	1.	Crushers, etc.	Bulletin	49A
	2.	Mills, etc.	Bulletin	44C
	3.	Kilns, Coolers, Dryers, etc.	Bulletin	44D
	4.	Pneumatic Transport Systems	Bulletin	52F

Name_____

Address_____

Company_____

Gone for good!

There's nothing quite as lost as profits that go up in smoke! We mean the profits from the valuable dust that's mixed with the smoke from many industrial stacks.

Alert Plant Engineers, seeking the most economical way to recover that dust, come to Buell.

Why? Because, for more than twenty years, Buell Engineers have specialized in this field. Their objective; better and more economical equipment. Their success; case histories that show the recovery of more than 40 tons of valuable dust *daily*.

To accomplish this, Buell Engineers analyze dust content in *advance*—can tell you the most economical way to reclaim its value.

Because of this sound approach, Buell serves dozens of America's Leading Corporations—some right in your own field. Why not send for some of the names?

Our informative brochure—The Collection and Recovery of Industrial Dusts—explains *all three* Buell systems of industrial dust recovery. For your copy, write Dept. 18-I, Buell Engineering Company, 70 Pine Street, New York 5, N. Y.

buell®

MECHANICAL ELECTRICAL

20 Years of Engineered Efficiency in

DUST RECOVERY SYSTEMS

SPECIAL *Chill* CAST

BRONZE GEARS

HARDENED AND GROUND STEEL WORMS

Advantages of Philadelphia Worm Gear Reducers

To insure long, dependable service from Philadelphia Worm Reducers, the greatest care and research goes into the selection of materials for the worms and worm gears. The predominant sliding action dictates the use of dissimilar metals to minimize frictional wear.

Philadelphia Worms are of alloy steel with hardened threads. Shaft and threads are smoothly ground and polished after hardering. The result is increased gear life through improved surface finish.

Worm Gears are of high quality chill cast nickel bronze to provide greatest strength, with a low coefficient of friction against the worm.

These and other features of Philadelphia Worm Gear Reducers are explained in detail in our Catalog WG 51 . . . send for a copy.

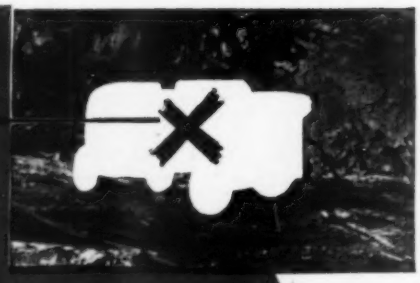
Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.

NEW YORK · PITTSBURGH · CHICAGO · HOUSTON · LYNCHBURG, VA.

Industrial Gears and Speed Reducers
LimiTorque Valve Controls

GONE TO THE "HOSPITAL"?



or working full time!

Your air supply stays on the job when you have a GARDNER-DENVER 600. Gardner-Denver engineers have designed it to operate continuously without the services of a specially trained technician — to deliver full 600-foot capacity continuously whether on 6-, 8-, 12- or 24-hour service.

Send today for Bulletin PC-12.

SINCE 1859

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 13, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Before you buy:

COMPARE CLUTCHES!

Two Link-Belt Speeder 2½-yd. K-580's speed stripping at this Canadian mine.

Speed-o-Matic controls pay off in less operator fatigue, more output, lower maintenance

Speed-o-Matic Clutch — Power is transmitted directly into the 3-shoe clutch. Mechanical linkage is eliminated, over 150 fewer wearing parts in clutches alone. Piston actuated clutch automatically adjusts for heat and normal lining wear.

THOSE rig-beating rock jobs aren't so tough when you've got a shovel like the 2½-yd. Link-Belt Speeder K-580.

That's because this rugged rig's complete power hydraulic control system and Speed-o-Matic clutch provide precise control . . . eliminate mechanical linkage . . . result in fast, smooth, shock reducing operation. What's more, maintenance costs are greatly reduced.

Speed-o-Matic controls are easy on the operator, too. Short-throw levers are finger-tip-operated. Think what this reduction in "end-of-the-shift" letdown means in additional output.

To get details on the K-580, see your distributor or write for Catalog 2287. For the complete line, request Catalog 2373.

LINK-BELT SPEEDER CORPORATION 10,158
Cedar Rapids, Iowa

LINK-BELT SPEEDER
CORPORATION
BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

FACTORY-TRAINED DISTRIBUTOR SALES AND SERVICE SPECIALISTS ...EVERYWHERE

HOW A 22-TON TRACTOR SHOVEL

Hustles All Phases of Production in a Granite Quarry

The purchase of a 3-cu.-yd. Allis-Chalmers Tractor Shovel has brought about a new, more efficient method of operation in a large Texas granite quarry. The versatile HD-15G, equipped with hydraulic front-end shovel and rear-mounted winch now speeds all phases of production.

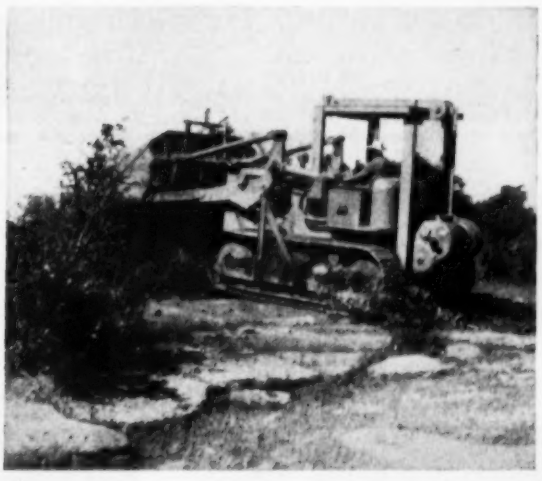
It scoops up all sizes of granite from fine aggregate to large blocks and loads it into trucks. It winches granite from inaccessible corners and drags 25-ton blocks to rail-mounted cranes for loading onto flat cars. Then, to round out its usefulness, it handles such miscellaneous jobs as building haul roads, laying rock on jetties, excavating for new construction, clearing land, stripping overburden and digging water reservoirs.

Loads Aggregate or Big Blocks Quickly, Safely. Number one assignment for the Allis-Chalmers HD-15G is loading granite into trucks. Granite ranges from "turkey grit" to tombstones. Big blocks are scooped up quickly and safely in the 9-ft. 3-in.-wide bucket. Full hydraulic control enables the operator to ease heavy ones into truck beds with a minimum of shock.

Winches the Big Ones from Anywhere. With a mounted winch, the tractor drags largest granite blocks, weighing about 25 tons, from anywhere in the quarry to a rail-mounted crane. This method eliminates the expense of moving tracks so that cranes can reach granite. Winch also pulls smaller blocks from inaccessible corners to the Tractor Shovel bucket.

Works Anywhere. On special assignment, the HD-15G helps build jetties near Galveston. The job required laying in over 1,500 tons of rock. This tractor dug, carried and placed rock in position. Large blocks, weighing over 5 tons, were handled with a rear-mounted boom.

Handles Tough Excavating. Here is one of many jobs on which the Tractor Shovel demonstrates its powerful excavating ability. In order to assure a constant supply of water for buffers and other machines, the HD-15G deepens and widens a nearby reservoir. In addition, it digs ramps, handles cut and fill work for access roads and strips overburden from granite deposits.

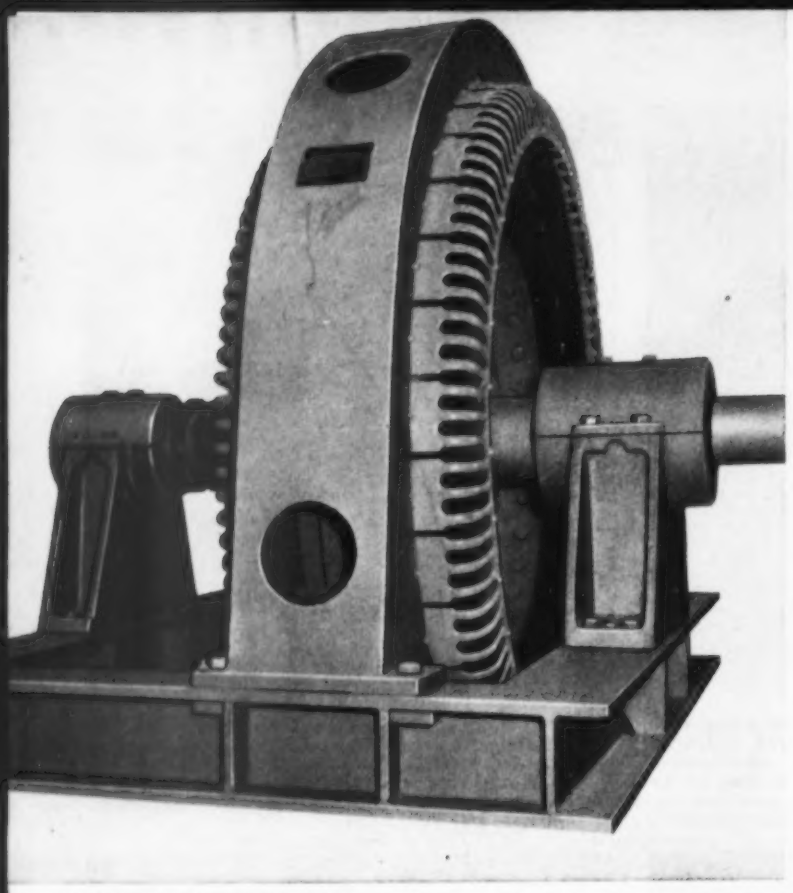


No End to Its Usefulness. The HD-15G continually finds new uses, new jobs in and around the quarry. Every day operators take advantage of its power and versatility for such assignments as clearing land, giving bogged-down trucks a lift, skidding heavy machinery, pulling, pushing, lifting, carrying material of all kinds.

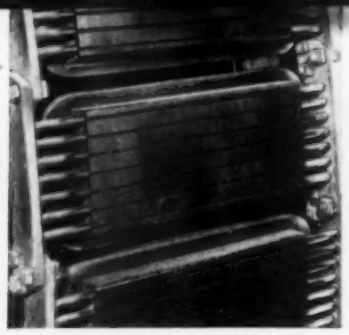
Ask your Allis-Chalmers dealer to show you how the HD-15G can help you meet the demand for greater output. Let him tell you, too, about the three other sizes of Allis-Chalmers Tractor Shovels from the 1-yd. HD-5G to the giant, 4-yd. HD-20G.

ALLIS-CHALMERS

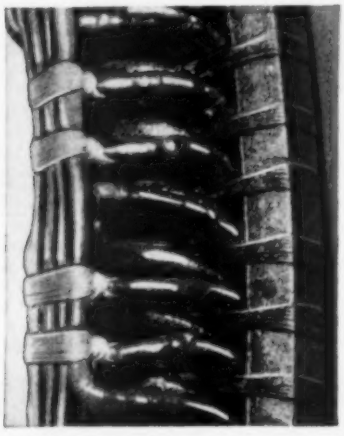
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



A G-E SYNCHRONOUS MOTOR, matched to your ball mill, is modern in design, neat in appearance, and built to give years of safer, more dependable service. Strength and rigidity are assured by fabricated construction and careful annealing of steel in rotors. Special coil and connection reinforcement gives extra protection to withstand the vibration and shock inherent in ball-mill operation.



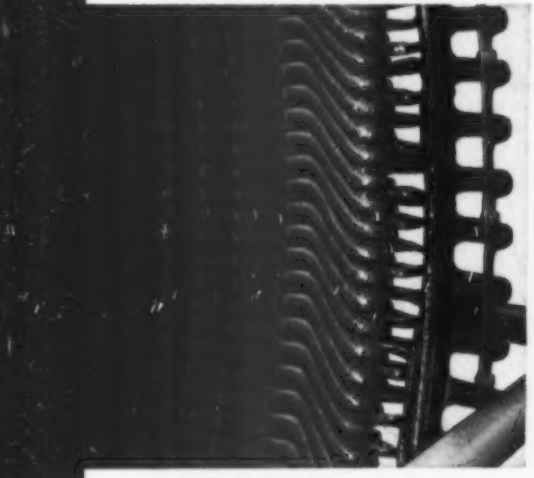
END SEGMENTS are sectionalized and securely bolted between poles. This rugged squirrel-cage winding assures more than ample strength for long motor life.



ARMATURE COILS are securely laced to an insulated support ring which, in turn, is rigidly attached to the stator frame.

G-E Synchronous Motors Specially Designed

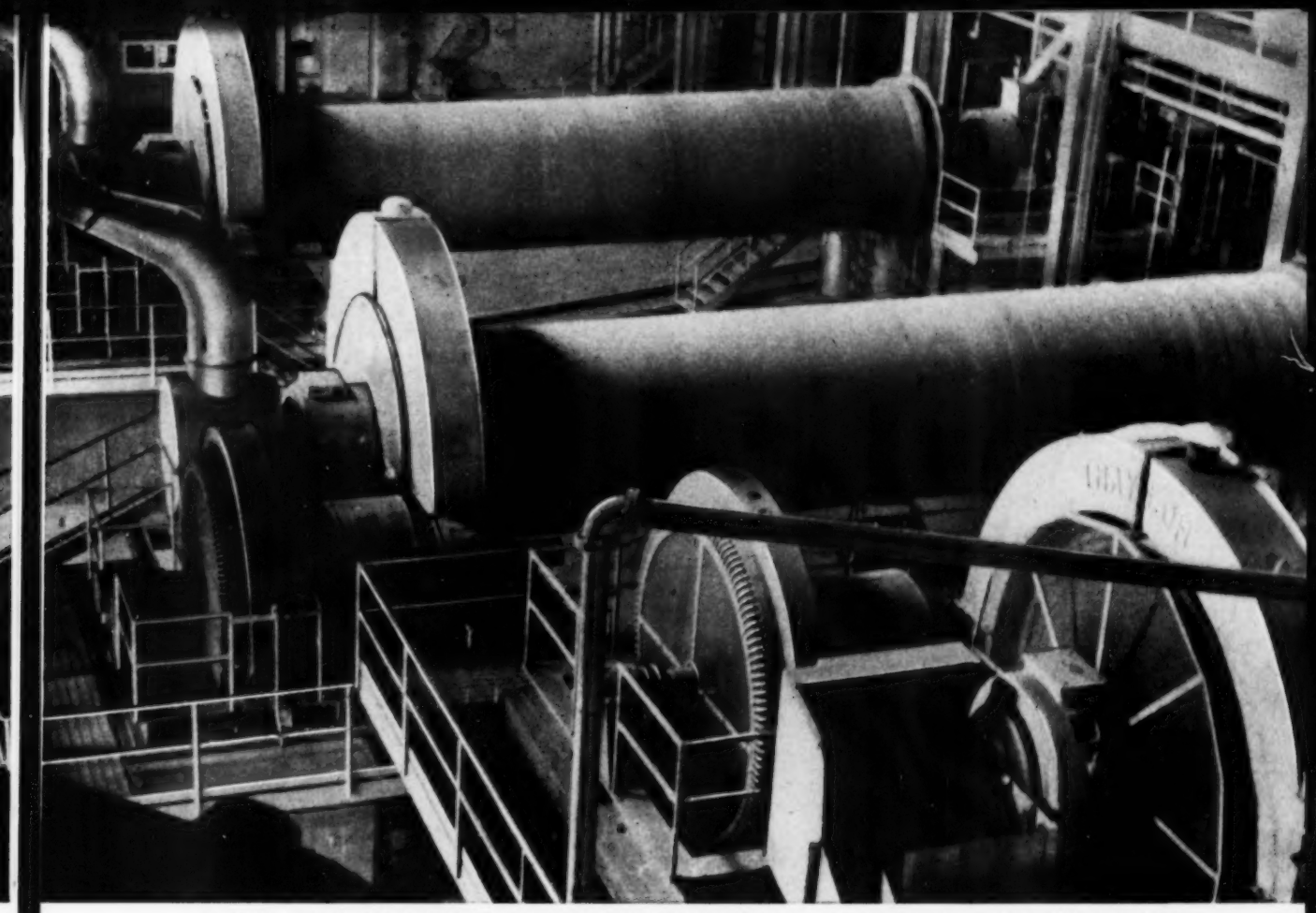
RAPID, ROUTINE MAINTENANCE MEANS LESS DOWNTIME BECAUSE . . .



1 GLOSSY VARNISH on windings acts as moisture barrier, resists dust adhesion, cleans easily. Clean windings mean longer insulation and machine life.

2 BRUSH-PRESSURE ADJUSTMENT is fast and easy with spring-loaded holder. Brushes are staggered for uniform wear giving maximum collector-ring life.

3 SNAP-TOP COVERS and sight gage make lubrication fast and sure. These convenient features encourage regular checking of oil-level.



THREE G-E TYPE-TS, 180-RPM SYNCHRONOUS MOTORS DRIVE TRAYLOR BALL MILLS AT IDEAL CEMENT CO., PORTLAND, COLO.

for Dependable, Economical Ball-mill Service

Ball mills are one of industry's "tough" drive applications. Motors must be able to meet torque requirements, withstand vibration, and run long periods without shutdown.

G-E synchronous motors are literally tailor-made to meet these requirements. Engineering and manufacturing experience obtained in building hundreds of motors for ball-mill drives and the proved dependable performance of G-E synchronous motors on all types of heavy-duty applications assure you of a motor that will withstand unusual demands and require only a minimum of maintenance expense.

Be sure to evaluate the special design features of G-E synchronous motors when you consider your next ball or rod-mill drive.

Contact your nearest General Electric office for bulletin GEA-5959—*Synchronous Motors for Ball and Rod-Mill Drives* or write to Section 770-30, General Electric Company, Schenectady 5, N. Y.

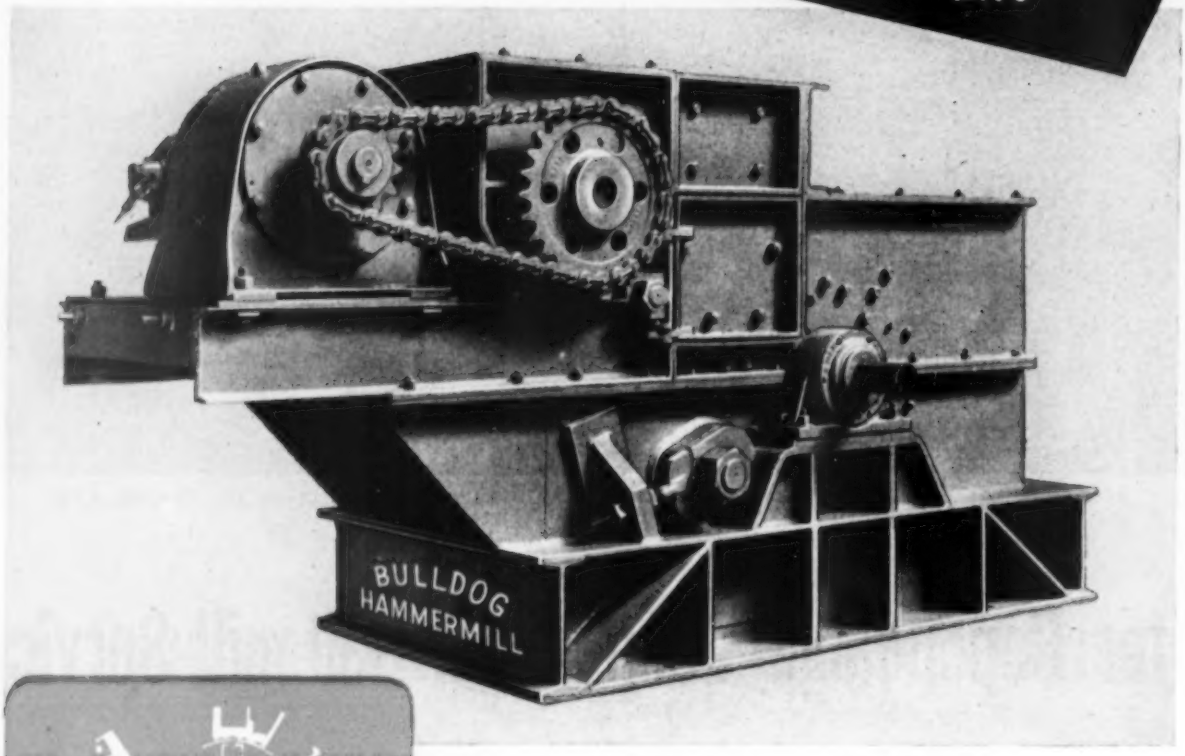
You can put your confidence in—

GENERAL ELECTRIC

BULLDOG HAMMERMILLS

Assure Rock Plants.....

Twice the Capacity with 15 Times Longer Hammer Life*



STATIONARY BREAKER PLATE TYPE FEATURES PETTIBONE Manganese Steel Hammers, Liners, Cage Bars, and Adjustable Breaker Plate

1 TO 1000 TONS PER HOUR CAPACITY

*ASK FOR PROOF OF MONEY-SAVING USES FOR PRIMARY, SECONDARY AND FINE REDUCTION

No hammermill offers as much production and operating efficiency as the BULLDOG! That's why operators who have checked them all know the BULLDOG'S exclusive non-clog feature of the Moving Breaker Plate reduces slow-downs and costly maintenance for high moisture materials. The Stationary Breaker Plate has no equal for dry materials. The BULLDOG Hammermill has the greatest hammer life of any hammermill. Write for Bulletin A today.

HAMMERMILLS, INC.

4700 WEST DIVISION STREET
CHICAGO 51, ILL. • SPaulding 2-9300

Subsidiary of PETTIBONE MULLIKEN CORP.

For Rugged Dependability... It's SECO Vibrating Screens!

Photographed at Dock 8 Installation, Cleveland Slag Co., Jones & Laughlin Steel Plant

Well Known Operator Finds SECO Means BETTER SIZING!

Whether it's for screening and sizing block plant material at the Dock 8 plant . . . or for making eight sizes to meet OHIO State Highway Dept. specifications at the Corrigan-McKinney plant . . . a total of eleven Seco screens are on the job at this modern Cleveland installation. There's a year by year record of dependable performance behind this preference for SECOS by leading slag producers.

Call it smooth operation . . . call it high, accurate production . . . or low maintenance. It's *all* of these in combination that make Seco vibrating screens *first* choice of progressive firms.

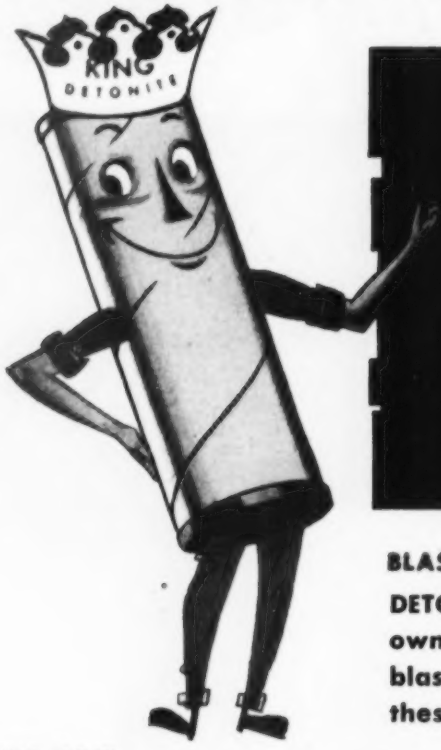
HOW ABOUT YOUR SCREENING PROBLEMS?
Take time now to find out how you can increase production and improve accuracy with the right Seco screens on your job!

SECO
TRUE CIRCULAR ACTION
VIBRATING SCREENS

OVER 350 MODELS
Single, Double, Triple and 3½ Decks
There's a right Seco for every screening requirement, from Ag-Lime to Rip-Rap. Write for your copy of Seco Catalog #203.

SCREEN EQUIPMENT CO., INC.
1750 WALDEN AVENUE
Buffalo 25, New York

WHICH OF THESE 4 OPERATIONS IS YOUR KEY TO COST CUTTING?



1. BLASTING
2. ROCK HANDLING
3. EQUIPMENT MAINTENANCE
4. PROCESSING

BLASTING IS THE KEY . . . . blasting with KING DETONITE, and we'll prove it to you right at your own quarry (see coupon below). With proper blasting, you get important reductions in *all* of these 4 major operating costs:

1. **BLASTING COST**

KING DETONITE is a slow-detonating powder. Its slow, heaving, spreading action lifts and fully displaces the burden. High cost of secondary drilling and shooting is greatly reduced.

2. **ROCK-HANDLING COST**

KING DETONITE breaks up rock into sizes that permit shovels to dig efficiently at all times, thus reducing handling costs to a minimum.

3. **EQUIPMENT MAINTENANCE COST**

KING DETONITE's proper fragmentation means less wear and tear on expensive equipment . . . less cost for maintenance and replacement.

4. **PROCESSING COST**

KING DETONITE's proper fragmentation allows your crushers to operate at top capacity, thus lowering cost of processing the stone.

4 WAYS TO CUT COSTS

King Powder Co., Inc.
Cincinnati 1, Ohio

SHOW ME how DETONITE will cut my costs 4 ways. Without obligation, have the King Representative get in touch with me to arrange for a DETONITE demonstration right at our quarry.

Name_____
Title_____
Company_____
Address_____

or phone us collect

DETONITE

PATENTED SURFACE-SENSITIZED EXPLOSIVE

1878 1953

THE KING POWDER CO., INC.

CINCINNATI 1, OHIO

F 85 ALLOY CAST STEEL BUCKETS

Finest Name in Cast Steel!

FARRELL-CHEEK STEEL CO.

HIGHEST QUALITY ELECTRIC FURNACE CARBON AND ALLOY STEEL CASTINGS

FARRELL'S CARBON STEEL CASTINGS

F-C HARD EDGE STEEL CASTINGS

F85 STEEL CASTINGS

RAILROAD CASTINGS
Locomotive and Car R. R. Specialty Castings

ELEVATOR, CONVEYOR PARTS
Sprockets, Traction Wheels, Chains, Buckets, Rollers, Idlers, Bushings.

GEARS AND PINIONS
"True Tooth" Gears and Pinions, Sheaves and Wheels.

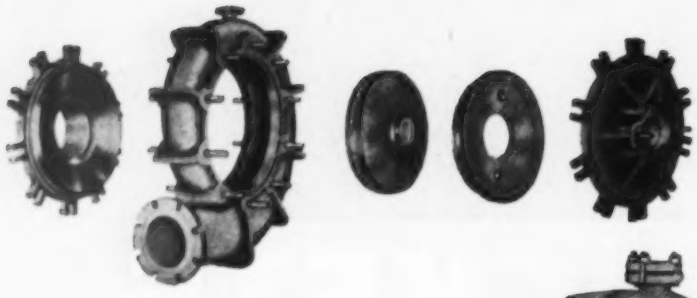
CRANE WHEELS
Overhead, Gantry, Monorail, Ingot Car, Charging Machine.

STOKER PARTS
Feed Screws, Furnace Tools, Flanged Pipe, etc.

HEAVY HARDWARE
Complete Line Wire Rope Fittings and Cutters, Bar Benders and Cutters.

YOUR INQUIRY WILL PROMPTLY BRING DETAILED INFORMATION PERTAINING TO ANY OF THE ABOVE FARRELL-CHEEK PRODUCTS

SANDUSKY, OHIO



Nickel-Chromium White Iron is utilized to provide abrasion-resisting components for all GIW slurry pumps. Capacities of these units range from 50 to 8000 gallons per minute against heads up to 150 feet.

How slurry pumps defeat abrasion

... Give maximum life per dollar invested

The outstanding performance of pumps engineered and manufactured by the GEORGIA IRON WORKS CO., Augusta, Georgia, demonstrates the superior wear resistance of their GASITE® – a nickel-chromium white iron with high hardness and exceptional resistance to abrasion...

GIW slurry pumps are especially designed to utilize this long wearing nickel alloyed white iron as a means of increasing unit efficiency and cutting maintenance costs.

Users of these pumps maintain steady output and thus avoid the production losses and other expenses that follow shutdowns for replacement or repairs.

In all sorts of applications, nickel alloyed irons and steels prove their superiority day after day. Consult us on the advantages they can provide in your products or equipment. Whatever your industry, when you have a metal problem send us the details for our suggestions.

At the present time, nickel is available for end uses in defense and defense-supporting industries. The remainder of the supply is available for some civilian applications and governmental stockpiling.

INCO

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.

with dependable GarWood "ROLLING WEDGE" ACTION

Here, in the heart of the hoist, is where the years-ahead design of Gar Wood's famous "Rolling Wedge" cam and roller action pays off in superior performance and unmatched dependability. Exclusive "Rolling Wedge" cam and roller action provides built in control of oil pressure during the entire lifting cycle. Oil pressure remains uniform at all times—there are no sudden changes from low to high or from high to low. Pump life is substantially lengthened and sudden shocks to hydraulic system are eliminated.

Scientific cam design with exclusive, lift-proportioned cam contour provides maximum lifting effort at the start of the lift *without increased hydraulic pressure*. Reduced cam entering angle gives greater lifting effort with slower, smoother action at the start. Stresses to hoist and chassis are eliminated. As the rollers are forced deeper, cam contour changes to provide accelerated lifting as the center of the mass is moved towards the discharge end of the body. *Oil pressure remains uniform during this entire lifting cycle.*

For smooth, dependable operation—and for longer service life in rugged dump-truck operation—specify Gar Wood "Load Engineered" Dump Bodies and Hoists when you buy new equipment. There's a size and type to fit your needs exactly. See your nearby Gar Wood dealer soon or write direct for complete specifications and application information.

Customer Service Department, SM100
GAR WOOD INDUSTRIES, Inc.,
16012 Main St., Wayne, Michigan

Please send me complete information about Gar Wood Dump Bodies and Hoists for my hauling job.

Name_____
Company_____
Address_____
City_____ Zone____ State_____
Describe operation briefly_____

GAR WOOD INDUSTRIES, INC.
WAYNE, MICHIGAN

GAR WOOD GW INDUSTRIES

GM DIESEL
CASE HISTORY NO. 1A3-12

OWNER: Georgia Coating Clay Co., Macon, Ga.

INSTALLATION: Twelve GM Diesels power shovels, Koehring Dumptors, GMC Trucks stripping 97 feet of overburden and mining Kaolin.

PERFORMANCE: Equip. Supt. W. J. Herrington reports 6-71 powering Koehring 1½-yd. shovel (background) has worked 45 hours a week, 52 weeks a year for over 6 years--about 14,000 hours--without an overhaul. Newer ¾-yd. Lima (foreground), powered by a 3-71, has already operated for 3500 trouble-free hours.

GM
GENERAL MOTORS
DIESEL
POWER

14,000 HOURS
WITHOUT ENGINE OVERHAUL

Long engine life between overhauls is only one advantage you get with General Motors Diesel engines. Power on every piston downstroke makes a 2-cycle GM Diesel accelerate faster under load—gets more work done every hour. Simple, practical design cuts down time because it does away with such trouble sources as high pressure fuel lines. When service is needed, you'll find the cost surprisingly low. GM Diesel engines are easy to work on—simple to inspect and service. And comparison will show you that GM Diesel parts cost less.

You can get GM Diesel power in leading makes of shovels, tractors, hauling units, loaders, compressors and generators. A postcard will bring you a list of the 750 different models of equipment powered by General Motors Diesel engines.

DETROIT DIESEL ENGINE DIVISION
GENERAL MOTORS • DETROIT 28, MICHIGAN
Single Engines . . . 16 to 275 H.P. Multiple Units . . . Up to 840 H.P.

U.S. ROYAL

CON-TRAK-TOR

FULL LUG

Pulls Down Haulage Costs!

Assign your rugged haul-loads *here!* This new Con-Trak-Tor is built with exclusive full-width lugs for *super* truck *traction*. It's got *triple protection* against impact—extra rubber between plies, double shock-pads, rock-resister cap-plies. It pulls and *works*, saves and *pays* like no other off-road tire! **Also available in Nylon for heaviest duty.**

Want proof? See or phone your U. S. Royal Dealer *Today!*

Specialized by U. S. ROYAL to do your jobs better!

U. S. ROYAL FLEETMASTER	U. S. ROYAL ROAD TRACTION	U. S. ROYAL LUG TRACTION
Smooth rolling *on* the road, superior traction *off*. 70% more tread depth!	New steering ease where most hauling is on-road at reasonable speed.	Best for high traction at low speeds off the road or on unimproved roads.

FREE—NEW 64-PAGE BOOKLET *SEND COUPON!*

U. S. Royal Truck Tire Department,
United States Rubber Company, Dept. C,
1230 Avenue of the Americas, New York, N. Y.

Please send me your new booklet of latest tire information, engineering and service aids, weight charts, load and inflation tables, etc.

Name_____

Company_____

Street_____

City & State_____

U. S. ROYAL TIRES *Product of* **UNITED STATES RUBBER COMPANY**

One hose handles them all!

VERSICON, Thermoid's versatile, all-purpose hose, handles virtually any type of gas or liquid . . . makes stocks of many different types of hose unnecessary. You save through reduced inventories, simplified buying and less storage space. Losses from end remnants are greatly reduced.

VERSICON Hose is built to last. Synthetic oil-proof tube is reinforced with braided, high-tensile rayon. Tough oil-proof cover resists weather and abrasion.

For quick, easy identification, VERSICON has a brown cover. It's available in sizes from 3/16" to 1½" in lengths to fit your requirements.

In addition to various kinds of multi-purpose hose, Thermoid makes hose for certain specific applications, such as paint spray, suction, creamery, etc. Call your Thermoid Distributor. He can supply you with the Thermoid Hose best suited for your requirements. Or write direct for Catalog No. 3680.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

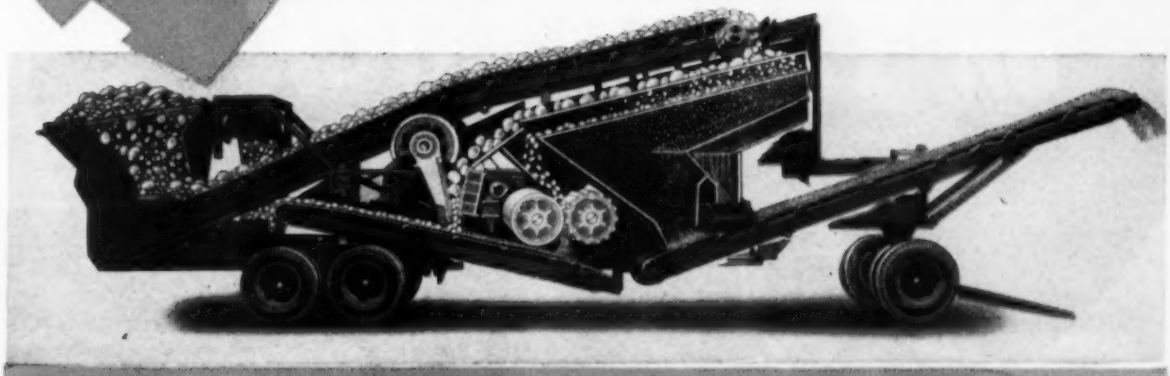
Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

designed for MORE PROFITS

WITH UNIVERSAL'S "SCALPING DECK" METHOD

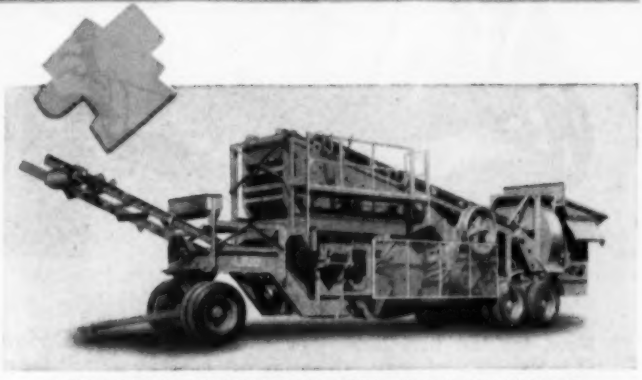


UNIVERSAL 880 GRAVELMASTER

Universal's "Scalping Deck" method of screening assures balanced loads to the jaw and roll crushers . . . provides greater efficiency and economy, protects screen, jaws, and rolls. You get better gradation of material, less jaw wear, less roll shell wear, longer screen life, savings in power, more effective use of screening area, faster material flow, greater plant output. These all add up to more tons per hour at less cost per ton with the new Universal 880 Gravelmasters.

Strictly for profit . . . buy a Gravelmaster. Get top engineering design. Get the rugged stability of a permanent installation plus ready portability to produce profitably anywhere.

Complete, compact Universal Gravelmasters are built in a range of streamlined sizes with capacities from 75 to 270 tons per hour. They're used extensively as complete gravel crushing, screening and loading plants, or to step up production as secondaries following a primary in quarry operations. For complete details on the size that meets your requirements ask your Universal distributor or write.



THE NEW UNIVERSAL 880 GRAVELMASTER SENIOR "R"

1036 roller bearing jaw crusher.

3022 roller bearing roll crusher.

Plant mounted power or side drive through universal joint from separate truck mounted power. An outstanding new high capacity Gravelmaster, designed to meet state highway weight limitations.

UNIVERSAL ENGINEERING CORPORATION division of PETTIBONE MULLIKEN CORP.

619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 W. Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

Now-Standardize on TAPER-LOCK

Now, for the first time, you can have all the benefits of standardizing on a truly modern method of mounting wheels on shafts . . . through the famous Dodge patented Taper-Lock design.

The time-saving, cost-cutting performance of Dodge Taper-Lock . . . already proved in millions of installations of Taper-Lock Sheaves, Couplings and Conveyor Pulleys . . . is now available in a complete line of Taper-Lock Sprockets with Dodge Roller Chain.

The bushing pictured here fits into the hub of every one of the Dodge products shown—sprockets, sheaves, couplings, conveyor pulleys. Both tapered bushings and hubs are precision machined to achieve perfect interchangeability. The result is less down-time on machines, simpler maintenance, reduced inventories. Taper-Lock gives you an unmatched opportunity to lower your costs and keep production rolling.

Dodge Taper-Lock grips the shaft for the full length of the bushing—holds with the firmness of a shrunk-on fit, yet comes off easily, quickly.

Taper-Lock's exclusive advantages were never more strikingly proved than in the new line of sprockets recently introduced by Dodge. For Taper-Lock brings to sprockets a new "off-the-shelf" availability. No time-consuming and costly reboring, key seating, drilling and tapping for set screws, needed to fit them to the shaft! Dodge Taper-Lock is available in both driver and driven sprockets from No. 40 to No. 100, up to 112 teeth. Taper-Lock bushings to fit shafts from ½" to 10" are available from stock.

Consider carefully the cost-saving advantages you get by standardizing on Taper-Lock — the modern method of mounting wheels on shafts. For further information, call your Dodge Distributor, or write the factory.

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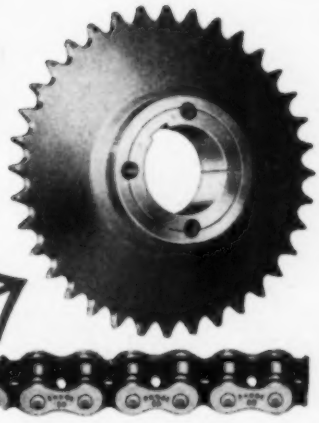

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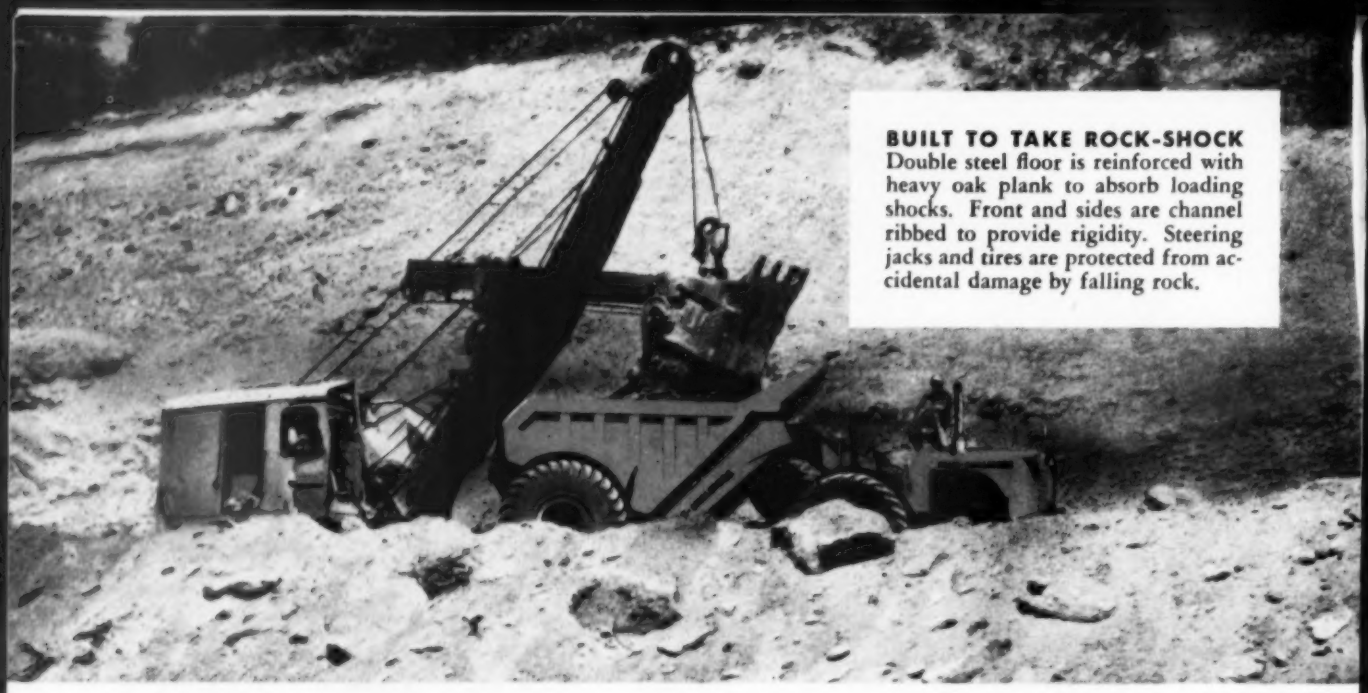

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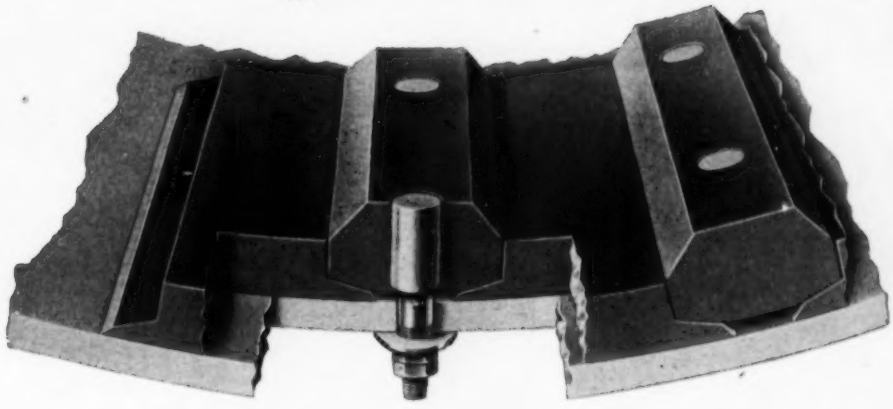

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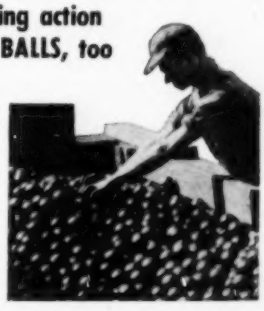

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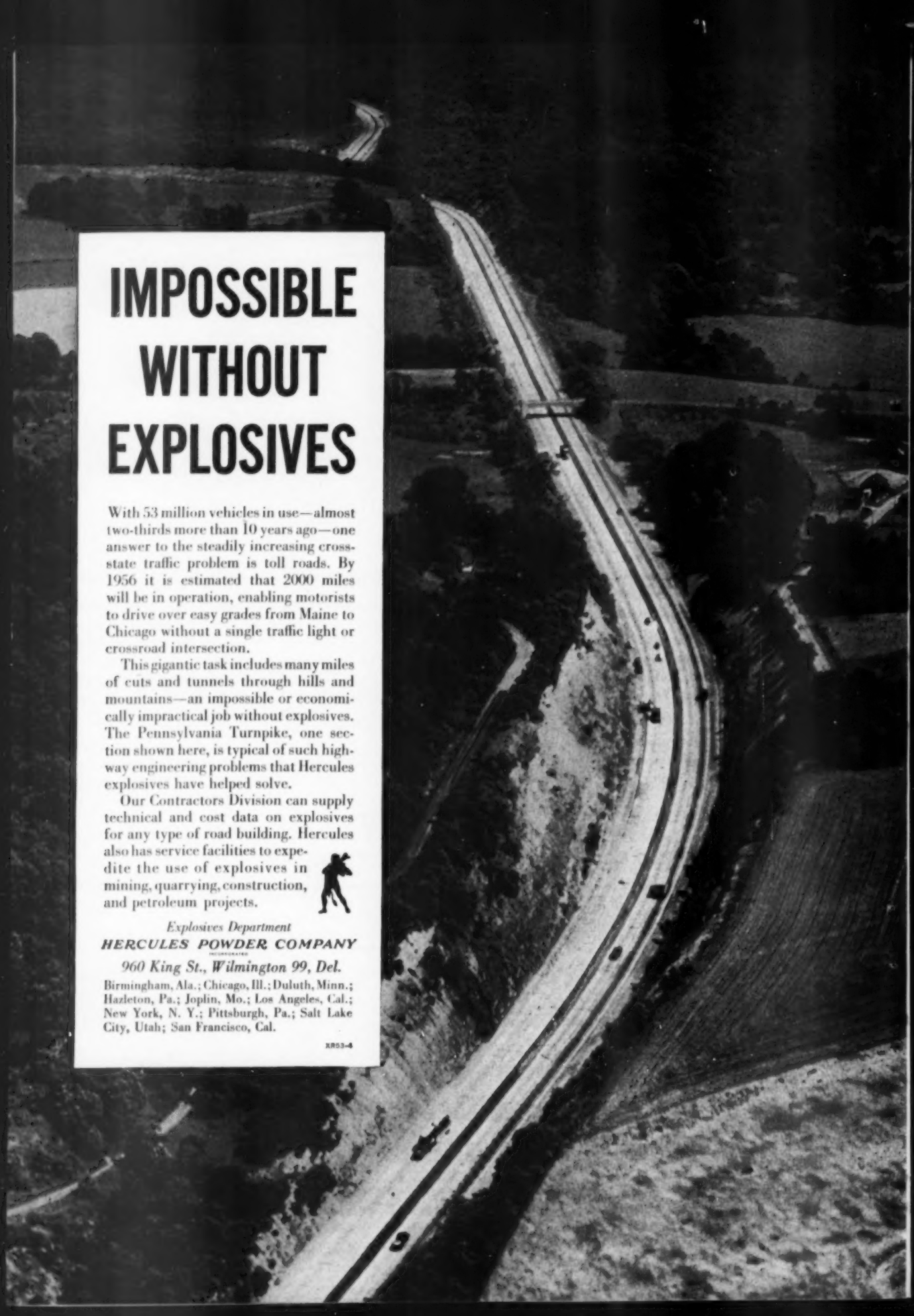

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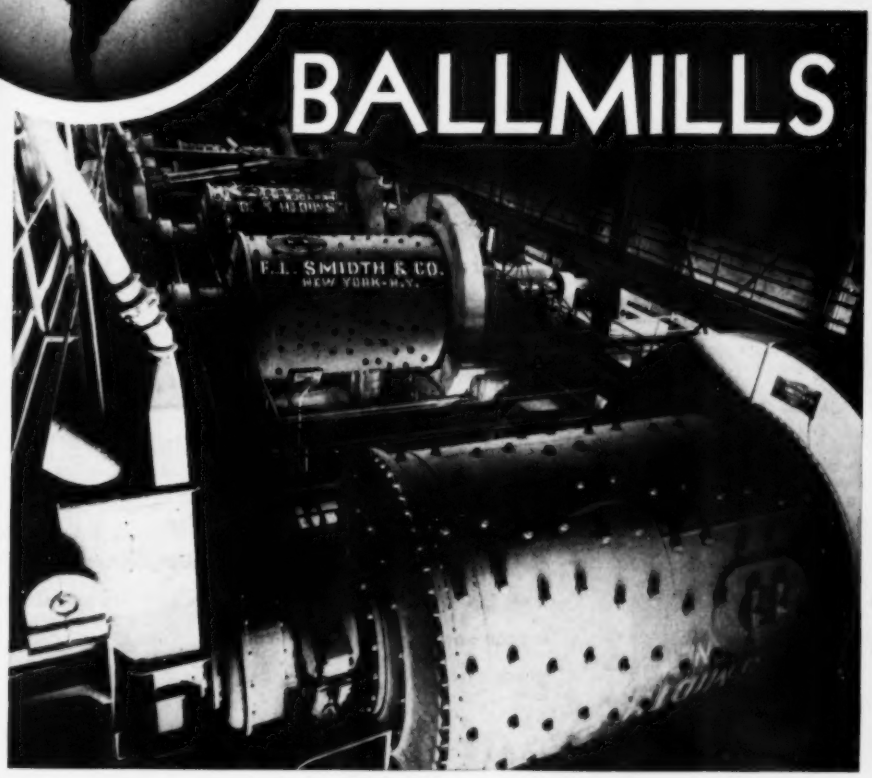

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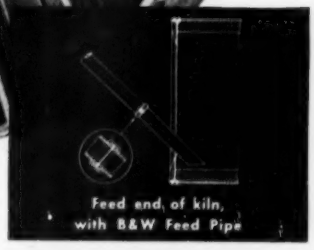

Feed end of kiln, with B&W Feed Pipe

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S-424

editorial

New Percentage Depletion Regulations

THE Internal Revenue Service (formerly the Bureau of Internal Revenue) on July 17, 1953, made public its long-awaited final regulations on percentage depletion, and these were published in the July 18th issue of the Federal Register. Several national associations of nonmetallic minerals producers which have been active in the fight for percentage depletion and its retention, have since issued interpretations and explanations of these regulations for their members. These interpretations are intended to help producers to solve the many complex problems which are sure to arise in the application of these new regulations. Producers are, however, warned of the difficulty of determining the exact policy which will be formulated in advance of specific Treasury decisions. Members of these associations who have an Internal Revenue Service representative disallow what they think they are entitled to in connection with percentage depletion are urged to send in a brief statement of the circumstances. This pooling of information will help the associations to get a clear picture of policies and to more effectively press for corrective legislation. All producers, of course, are advised to consult their own counsel in case of difficulties.

Some of these associations are not satisfied with the new regulations and have already taken active steps to have the objectionable features changed. Their percentage depletion committees, after quickly reviewing the revised regulations, prepared formal testimony and presented it before the House Ways and Means Committee. This committee was engaged in conducting hearings on the Internal Revenue Code, in which almost every phase of the current tax laws was being examined with a view to action in the next session of Congress on possible amendment of these laws.

After the proposed amendments to the original percentage depletion regulations were published in the Federal Register on October 29, 1952, numerous hearings and conferences were held by various industry groups with representatives of the Commissioner of Internal Revenue. Some of these groups recommended changes in features considered objectionable by their industries. One change recommended was to make it clear that treatment processes, such as drying, grinding, pulverizing, etc., would not be eliminated from gross income for the purpose of computing percentage depletion deductions.

OPINION is divided on the actual extent and importance of the few major changes made. In addition a few formal changes were made which are not significant but serve to clarify the text and its application. In the new regulations the greatest change was made in relation to treatment processes, and the original provision was deleted and replaced by a new one.

There is apparently some liberalization in the new provision; but according to the privately expressed views of some Internal Revenue Service officials, the intention was to clarify the Service's interpretation of the law and not to liberalize it in any way. They also feel that the language used would permit, in the case of materials similar to sand and gravel, primary and secondary crushing, washing, drying and screening, and other similar processes which would tend to facilitate the preparation of the product for shipment. Where a process is applied primarily to accomplish some other purpose, it is held that this will not be considered an "ordinary treatment process".

IT is apparent from an examination of the amendments to the regulations that the Revenue Service has not changed its views on the "end-use test". While the regulations specify that the end-use test shall be used in certain cases, there are indications that the Internal Revenue Service will apply it in other cases where it is to the Government's advantage to do so. Despite the position of the Service and the fact that one lower court has approved the end use test, these associations feel that other courts may question the validity of this test, as Congress made it clear in the Revenue Act of 1951 that it intended to adopt the "commonly understood commercial meanings of the terms used in the law."

These associations recommend that members consult their counsel before accepting the decisions of agents of the Internal Revenue Service regarding processing costs included in "gross income from the property" for percentage depletion purposes. It is held that in each case the question of whether such process is permissible as "an ordinary treatment process" is a question of fact reviewable by the courts despite any position which may be taken by the Internal Revenue Service.

Where the "end-use" test is disadvantageous to producers, they are urged to consult their counsel before accepting the edict of the regulations or of the examining agents regarding the application of the test. It is stated that there is involved in this point a question of both fact and law, and that the courts may decide against the Treasury Department and the Internal Revenue Service in the proposed application of the "end-use" test.

THE entire history of percentage depletion is an unparalleled example of what alert and aggressive trade associations can do for their industries. These groups initiated the original efforts to obtain percentage depletion, and in spite of several discouraging setbacks, finally obtained for their industries what other industries, no better qualified, had long enjoyed. These groups, including not only their paid staffs and legal advisors, but also their members, are continuing the fight to remove still-existing inequities, not only in the application of various provisions of the present law, but also in the amount of depletion allowed. Their unceasing efforts are benefitting their entire industries, both association members and those who are not members. The least that non-members can do is to keep their congressmen and the public in their areas sold on the subject of percentage depletion.

Walter E. Trauffer

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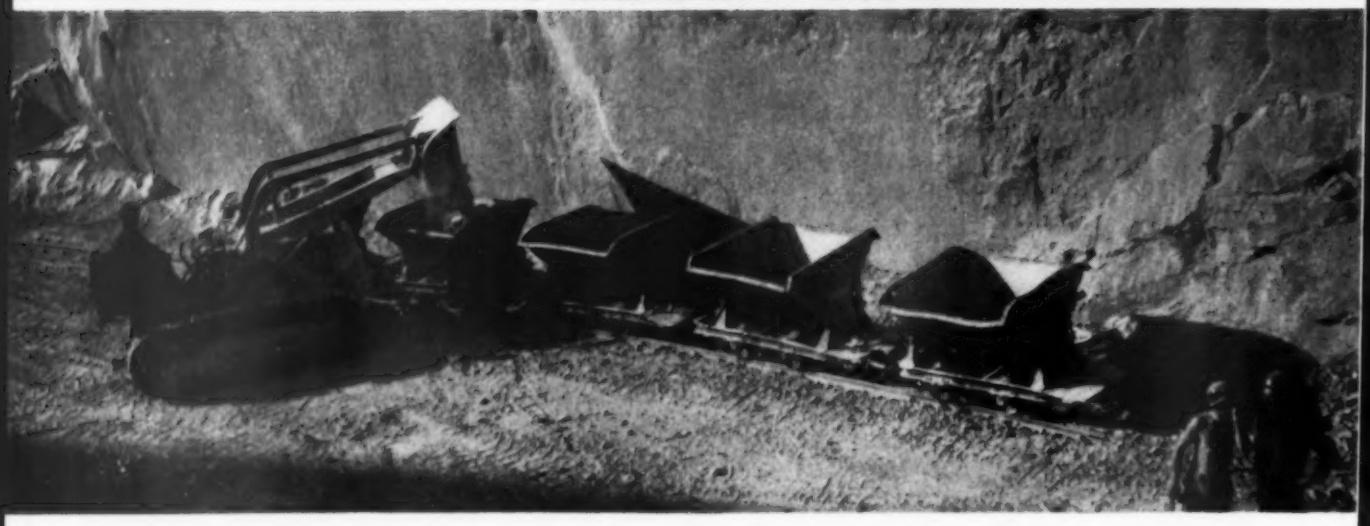
RUGGED FOR ROCK



THERE'S a lot of dusty, equipment-busting rock around a pit or quarry. The Caterpillar HT4 Shovel is built to produce in conditions like these, and to *keep on producing* for thousands of hours without tinkering, coddling or down time.

Carefully sealed hydraulic system and engine keep oil *in* and dirt *out*. Effective air, fuel and oil filters protect the rugged Cat* Diesel Engine from harmful abrasive dust. Engine, tractor and shovel are *matched*, with extra strength where it's needed. It all adds up to a machine that's built to stay on the job and out of the shop.

The HT4 Shovel shown here digs rock and loads and hauls buggies in a quarry at Kananaskis, Alberta, for Loder's Lime Co., Ltd. When both of the plant's kilns are working, this Cat Shovel handles 35 buggies a day. Plant capacity is 70 tons of lime per eight hours. The versatile HT4 can also bulldoze, clean up and do light stripping. It has excellent operator visibility, and is compact and maneuverable for work in tight places.

T. A. Barton, superintendent, says, "Our Cat HT4 Shovel is just the ticket for this work. It gives us no trouble, and never hesitates to start in any weather." Its Caterpillar fuel system and Diesel Engine are *foul-free* all through the power range—idling, lugging, or full throttle. And this on low-cost No. 2 furnace oil! Mr. Barton reports a fuel saving of 50% over his former tractor!

Your Caterpillar Dealer—who backs his sales with fast service and genuine factory parts—will gladly demonstrate, on your own job, the shovel that will do most work for you at lowest cost. Call him now.

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NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

news of the industry

PIT AND QUARRY

Ideal Cement Company Launches Colorado Farm Restoration Program

The Ideal Cement Company, Denver, Colo., has launched what may ultimately become a $100,000 program to restore to productivity, its farm and range lands near LaPorte.

Ideal's objective in this venture is two-fold; to make these holdings more profitable and to demonstrate to farmers of this northern Colorado area that good farm land can be maintained in the shadow of the company's big Boettcher cement plant.

From an agricultural standpoint, the entire layout has been a side issue, as the land was originally acquired for limestone and shale to be used at the cement plant.

One purpose of the present program is to demonstrate that the dust from the plant has no harmful effect on crops. The over-all program is aimed at a livestock operation, utilizing the dry land ranges and irrigation pastures in rotation. Feed crops will also be included in the highly diversified program.

To boost fertility, the company this year alone has poured 100 lb. of 20 percent phosphate of its own manufacture into the land, and with water now available for additional irrigation, general crop rotation will be set up in the near future.

To head up the job as farm manager, Ideal has employed R. L. Partridge, who retired last October as manager of the Fort Collins factory of the Great Western Sugar Company.

Monarch Cement Company Begins Training Program

The Monarch Cement Company, Humboldt, Kans., has recently announced the inauguration of an extensive training program for company employees. The operation has been planned after an exhaustive investigation into the problem of keeping experienced employees abreast of the increasingly complex items of equipment which have been put into service in the past few years. Classroom and on-the-job instruction designed for all classes of employees are being prepared.

The training program has the full support of the company officials and Monarch employees. Both groups expressed their willingness to cooperate in a joint effort to make the program a success. Joseph V. Heenan, Humboldt, will be in charge of the new program.

Coming Events

September 15-16, 1953 — Pittsburgh. 36th annual meeting, National Slag Association. Schenley Hotel.

September 21-24, 1953 — Seattle. Metal and Nonmetallic Mineral Mining Convention, American Mining Congress.

September 28-30, 1953—Colorado Springs. Directors' meeting, National Sand and Gravel Association. The Broadmoor.

October 12-14, 1953—Birmingham. Annual operating meeting. National Lime Association. Tutwiler Hotel.

October 19-23, 1953 — Chicago. 41st National Safety Congress and Exposition. Conrad Hilton, Congress, Morrison, and Hamilton hotels.

October 21-23, 1953 — White Sulphur Springs. Annual fall meeting, National Industrial Sand Association. The Greenbrier.

February 15, 1954 (week of) — Chicago. 38th annual convention, National Sand and Gravel Association and 24th annual convention, National Ready Mixed Concrete Association, with machinery expositions. Conrad Hilton Hotel.

February 18-20, 1953 — Chicago. Annual Convention, National Agricultural Limestone Institute, Inc. Blackstone Hotel.

February 22-24, 1954 — Chicago. 37th annual convention National Crushed Stone Association, with exposition. Conrad Hilton Hotel.

Marquette Cement Co. Honors Brandon Personnel For Great Safety Record

All employees at the Brandon, Miss., plant of Marquette Cement Manufacturing Company were honored Friday, July 3, for their outstanding record in industrial safety. There has been not a single lost-time injury to any man working in the plant or quarry there since operations began in 1951. This is an achievement never before equalled in the history of the American cement industry.

In recognition of this, and specifically for a perfect safety record in 1952, the plant has been awarded the safety trophy of the Portland Cement Association. Presentation of this monumental concrete award was made by Ivan LeGore, manager of the Association's Accident Prevention Bureau. The dedication ceremony was held on the plant grounds. It was followed by a picnic supper, entertainment and prize awards for those in attendance, which included the families of all who work there. Also present were Brandon Mayor Ralph Boyce, State Senator W. E. McIntyre, Jr., as well as the board chairman and president of Marquette Cement and members of the company's executive staff.

As of July 3, employees in the Marquette quarry at Brandon had worked 762 consecutive days without a lost-time injury to anyone. As of the same date, the safety record of plant personnel stood at 592 consecutive accident-free days. Holder of the best record for safety in operations among all multiple-plant companies in the cement industy, other Marquette Cement Manufacturing Company plants have established even more impressive records in what is generally regarded as the safest of all American heavy industry. But no American cement plant has ever before completed its first year of operations with a record approaching that of the Brandon personnel.

Dominion Asbestos Mines recently began operating its new $2,000,000 asbestos milling plant at St. Adrian de Ham, Quebec. The initial operating capacity is 2,200 tons daily, but this is expected to be increased to 4,000 tons shortly.

American Mining Congress To Hold Annual Convention In Seattle, Washington

The 1953 Metal and Nonmetallic Mining Convention of the American Mining Congress will be held at Seattle, Wash., September 21 to 24. The program will feature special panel discussions of public lands matters, tariff policies, and mine taxation in which leading members of Congress will participate. The Convention program will highlight such other important topics as labor relations, manpower, progress in defense mobilization, national mineral policies, new horizons for minerals, gold, silver and monetary problems, the plight of the strategic mineral industries, uranium mining and its future, and many mine and mill operating developments.

Another highlight of the opening day of the Convention will be an address by Arthur S. Flemming, director of the Office of Defense Mobilization, who will bring the mining industry up to date on the progress being made in defense mobilization and plans for the future.

Revision of the Taft-Hartley Act, incentive plans for greater productivity, and means of overcoming a serious shortage of young mining engineers will be discussed by mining industry authorities at a special session devoted to labor relations and related subjects.

At the session on new horizons for minerals Governor Frank Heintzleman of Alaska will tell convention delegates of the latest developments as to minerals in that important area. This session will also give attention to opportunities in uranium, mining, presented by an official of the U. S. Atomic Energy Commission, and to the role of research in mineral progress.

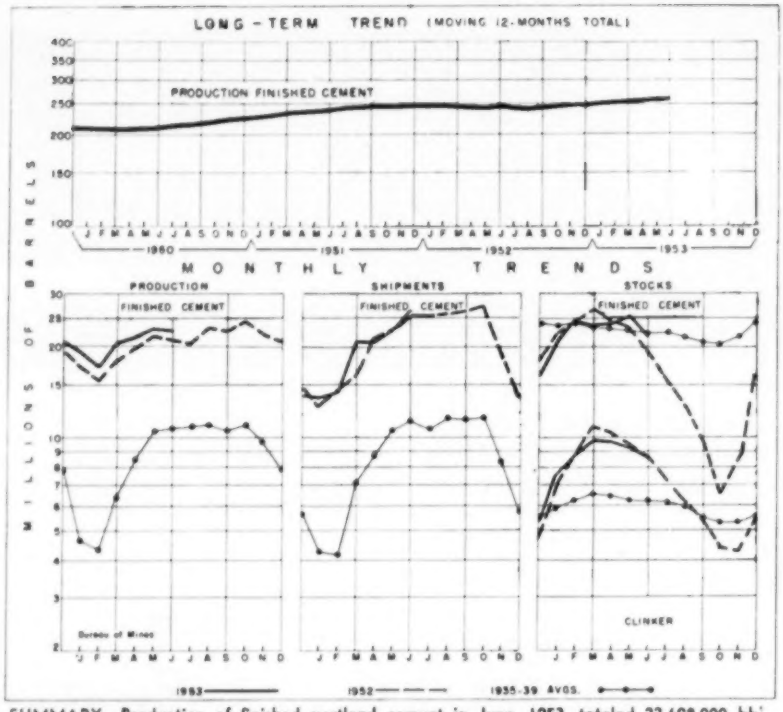
Subjects of particular importance to mine operating officials which will be discussed at special sessions of the Convention include advances in mechanization and safety, rock breaking, modern mining methods, roof support, and open-pit mining.

During the meeting, the mining industry will draw up and adopt resolutions covering matters of national policy which affect the industry.

On the last day of the meeting, mining men will take an all-day trip to nearby Victoria, B. C. Other trips are scheduled for the following days to industrial and mining operations in the vicinity of Seattle. Some two thousand mining men are expected to attend the meeting and will be drawn from all parts of the United States and Canada.

July Construction Activity Maintains Record Level

Total expenditures for new construction rose slightly in July to a new monthly peak of almost $3,300,000,000 and were 8 percent above July, 1952, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics. The small July increase (about 2 percent above the June estimate) resulted chiefly from seasonal gains in highway construction and in private outlays for public utilities, plus a more than seasonal rise in commercial construction.



SUMMARY—Production of finished portland cement in June, 1953, totaled 22,698,000 bbl., as reported to the U.S. Bureau of Mines—a 9 percent increase from the June, 1952, figure. Mill shipments totaled 26,400,000 bbl.—5 percent more than in June, 1952—while stocks of 21,545,000 bbl. at the end of the month were 14 percent higher than on the same date a year ago. Clinker production during the month totaled 22,232,000 bbl., an increase of 11 percent from the June, 1952, total.

PRODUCTION—One hundred and fifty-six (156) plants located in 37 states and Puerto Rico reported a production of 22,698,000 bbl. of finished portland cement during the month, as compared to 155 plants which manufactured 20,748,000 bbl. in June, 1952. Clinker production during the month was 22,232,000 bbl., as compared to 19,950,000 bbl. during the previous June.

SHIPMENTS—Mill shipments of finished portland cement were 5 percent higher than in June, 1952, and totaled 26,400,000 bbl. Shipments were higher in 11 districts, and lower in 9 districts, as compared to June, 1952. Heavy increases were noted in the western-Pensylvania-West Virginia and the Indiana-Kentucky-Wisconsin districts, up 91 percent and 60 percent, respectively, while other sizable increases were shown in the Virginia-Georgia-Florida-Louisiana-South Carolina-Mississippi, Southern California and Ohio districts. Principal decreases were in the Illinois, eastern Missouri-Minnesota-South Dakota, Puerto Rico, and Kansas districts. Cumulative shipments for the first six months of 1953 totaled 118,703,000 bbl., as compared to 113,164,000 bbl. for the January-June, 1952, period.

STOCKS—Mill stocks of 21,545,000 bbl. of finished portland cement were on hand on June 30, 1953—14 percent more than at the end of June, 1952—while stocks of clinker amounted to 8,669,000 bbl.—1 percent more than at the end of June, 1952.

Private spending for public utilities reached a monthly record of $410,000,000 in July, and outlays for private residential building (about the same as in June) exceeded $1,000,000,000 for the third successive month. Commercial construction rose 9 percent, but private industrial construction declined more sharply in July than during the past several months. Total private expenditures for new construction put in place during July amounted to $2,200,000,000—about the same as in June, but 9 percent above July, 1952.

Public construction expenditures were boosted 5 percent during July to $1,100,000,000 chiefly because of the gain in highway work, which rose 9 percent during the month to $360,000,000. Increases occurred for most other major types of public construction also, but the gains generally were less than seasonal.

Thus far in 1953, new spending records have been established for several types of construction, including private expenditures for new residential building, public utility construction, and commercial and educational building. In the public sector, expenditures for highways and schools also exceeded any previous January-July total. Although private industrial construction has been declining since February, expenditures in 1953 for this work almost equalled the record 1952 figure, when totals for the first seven months are compared.

Total expenditures for new construction put in place during the first seven months of 1953 amounted to $19,300,000,000, a gain of 8 percent over the same 1952 period, and physical volume (expenditures adjusted for price changes) also was up slightly from 1952.

The capacity of Norway's cement plants is now 730,000 tons a year, compared to 400,000 tons on Jan. 1, 1953.

Swiss Interests to Build $12,000,000 Cement Plant Near Quebec City, Canada

Construction of a $12,000,000 Canadian cement plant is underway in the municipality of Villeneuve near Quebec City, Quebec. Swiss interests are backing the development. Known as the St. Lawrence Cement Company, the new plant will have a capacity of 1,500,000 bbl. of portland cement annually. Production, which is expected to begin in the fall of 1955, will augment Canada's current cement production of 18,000,000 bbl. and will help alleviate a serious Canadian cement shortage.

Behind the venture is Cement Works Holderbank A.G. of Switzerland, which also owns cement plants in several European and African countries. Officers of the Swiss firm associated with the Canadian development include Hans Gygi and Robert Koch; project engineer at Quebec is B. Ulrich. Eight directors of the St. Lawrence Cement Company are Swiss, and one is Italian.

Initial construction, which began in July, consists of the erection of two auxiliary buildings, including a workshop and warehouse building and a laboratory and office building. Construction of the main part of the plant is scheduled to start early next spring.

The main machinery contract is held by Canadian Allis-Chalmers Ltd., which will also install the equipment. Brown Bovari Ltd. and Canadian Westinghouse hold electrical contracts.

An abundant supply of raw materials (except coal) is contained in the company's extensive land holdings. The plant will be located 4.2 miles from the docks in Quebec City.

New Booklet Evaluates Crushers for Specific Jobs

A new booklet giving information on how to go about making the most efficient and satisfactory application of various types of crushers to specific jobs has been published by the Pennsylvania Crusher Company, Philadelphia, Pa. All the important factors that go to influence operation, such as power consumption, parts wear, maintenance costs, uniformity of product and others are discussed in detail. Also, a check list is given that goes a long way to help determine the best type of crusher for various jobs.

Five types of hammermills, jaws, impactors, granulators, gyracones, Bradmills, Bradford Breakers, Bradford Hammermills and several types of single rolls are discussed in detail. This booklet is a valuable addition to any engineer's or operating man's library. It will be sent free of charge to anyone sending in a request on a company letterhead.

Missouri Valley Limestone Company Opens New Location

Road rock and limestone for agricultural use is being produced from a new location by the Missouri Valley Limestone Company, Macedonia, La. The new site has as large a deposit of limestone as the original quarry, and company officials report it took 14 men working 40 days to remove 65 ft. of loess, cap rock, and shale to get to the main ledge of rock.

Equipment used in the project included three Tournapulls having a capacity of 16-cu. yd., five Caterpillar tractors and scrapers, bull dozers, and a pushcart. For the present, rock will be crushed only at the original quarry.

Seek Approval on Japanese-American Asbestos Contract

A plant for setting up facilities in Japan for the manufacture of asbestos flexible board has been submitted for official approval by the Onoda Cement Company of Japan, and Johns-Manville Corporation of the United States.

Onoda Cement, in order to obtain technical aid from Johns-Manville, organized the Japanese-American Asbestos Company last November. The application has been filed by the new company rather than by Onoda itself.

The new firm will receive from Johns-Manville technical aid, equipment and raw material for the production of Johns-Manville flexiboard. It will also receive reports from the American corporation on results of future researches. The proposed contract, if granted, will remain valid for 15 years.

The first soil-cement highway to be constructed in Colorado is a 7.2 mile stretch of State Highway 71 south of Brush. The work on the $200,000 project is being done by the Inland Construction Company of Cheyenne, Wyo.

Cover Picture....

• The picture on the cover of this issue shows the sand and gravel pit of the Owl Rock Products Company at Monrovia, Calif. The decomposed granite in this deposit is pushed into the plant hopper by a Caterpillar D8 diesel tractor with a No. 85 bulldozer. While not a recent picture, this view shows an interesting method of operation. The same company operates a crushed granite quarry and plant at Montebello, also in the Los Angeles area.

McCaslin Heads Committee On Natural Resources In United States C. of C.

The Chamber of Commerce of the United States recently announced the composition of its 1953-54 Committee on Natural Resources. The committee is composed of 42 members who represent all types of natural resources industries and related fields of energy supply, conservation, and land utilization. Frank E. McCaslin, president of Oregon Portland Cement Company, Portland, Ore., and a member of the Chamber's board of directors, has been named chairman.

Members of the committee have been placed on seven subscommittees assigned to work on special projects and objectives of the Chamber during the year. Special study will be given to government expenditures, federal taxation, social legislation, and labor relations, as these affect the natural resources industries. In addition, special attention will be given to the Chamber's program of Jobs, Markets, and Production.

In establishing these subcommittees and outlining the program of work for the coming year, Chairman McCaslin pointed out that the Chamber always has worked for wise conservation and better use of our vital natural resources. He said:

"The Chamber today is in a position to help business men implement these sound resources policies necessary to increase the wealth and security of the nation and the free world in a rapidly expanding economy . . . Private enterprise—the backbone of America's industrial progress—has learned to manage our natural resources without exploiting national assets and without strict governmental domination and control."

Members of the subcommittee on minerals and metals are the following:

Mr. McCaslin; Ralph L. Dickey, president, Kelley Island Lime & Transport Company; R. C. Klugescheid, Kennecott Copper Corporation; L. Litchfield, Jr., mining division, Aluminum Corporation of America; H. L. Pierce, Hanna Nickel Smelting Company; and R. C. Young, American Zinc, Lead and Smelting Company.

The first meeting of the natural resources committee is scheduled for October 1 and 2 in San Francisco.

Carbon Black Production Declines 4 Percent in 1952

Production of carbon black in the United States in 1952 totaled 1,604,102,000 lb., 4 percent below the 1951 output. Domestic sales increased 2 percent to 1,154,274,000 lb., while exports declined 32 percent to 292,908,000 lb. Producers' stock increased 156,116,000 lb. to a total of 359,350,000 lb.

Production and sales of furnace blacks in 1952 maintained approximately their 1951 levels, increasing 1 percent and 2 percent respectively. Both production and sales of contact blacks, however, declined—production 13 percent and sales 23 percent.

William A. Gibson, Bradley Vice President, Dies at Allentown, Pa.

William A. Gibson, 68, vice president and managing director of the Bradley Pulverizing Company, died on July 27 shortly after being stricken ill on the street. Mr. Gibson, who served as managing director of Bradley for the past 43 years, was well-known to the cement and agricultural limestone trade, having had a host of friends in both industries.

It was Mr. Gibson who established the Allentown branch of his company 38 years ago, coming to Allentown from the Boston office of the firm. He called Allentown "the greatest town in the world" and carried out this sentiment by great activity in civic and cultural causes. During a term as school director, 1926 to 1931, he was a force in the organization of the vocational education program. He headed at one time the Lehigh Safety Council and served on the boards of the Red Cross, Community Chest, Family Welfare Society, and Boys Haven. He was also a member and former vice-president of the Chamber of Commerce and of several local clubs and lodges. Mr. Gibson was also the first president of the board of the Allentown Art Museum and served for many years as a board member.

U.S. Potash-Union Contract Provides Employee Benefits

Signing of a two-year contract by the Carlsbad Potash Union (Independent) and the United States Potash Company provides for a 22-cent increase in base wages, including 18 cents previously paid under a cost-of-living clause. In addition a new bonus plan was agreed upon.

Among the other provisions of the contract were the following: elimination of the cost-of-living escalator clause; a maintenance of membership clause; certain rate adjustments and establishment of a speeded up promotional procedure. A new and improved insurance system and a revised pension plan were also offered the union by the company.

Asphalt Institute Appoints A. S. Wellborn Chief Engineer

Bernard E. Gray, president of The Asphalt Institute, has announced the promotion, effective July 1, of Arvin S. Wellborn, formerly managing engineer of the Pacific Coast Division of the Institute, to be chief engineer of the Institute, with headquarters in New York. In this post, Mr. Wellborn will assume direction nationally of a rapid-growing engineering staff promoting the use of asphalt for roads, streets and airfields, and developing requisite research for these and additional uses.

Mr. Wellborn has had a long career in the engineering field, both as a civilian and as a Naval officer. Following his course at the University of Arkansas Engineering School, he was first employed by the Arkansas Highway Department in the Department of Materials and Tests from 1933 to 1940. There his last position was in asphalt soil stabilization.

After two years of employment with an

Arvin S. Wellborn

asphalt pavement construction firm as chief engineer and assistant manager, Mr. Wellborn served in the U. S. Navy with the rank of Lieutenant Commander. Following a period of one year in general contracting, in 1947 he was employed by the Navy as Engineer in Charge of Design and Construction of Airfields in Cuba, resigning in August, 1949, to head The Asphalt Institute's Pacific Coast Division.

May Monthly Lime Report Shows Production Decline

In May 1953, domestic sales of open-market lime (710,874 tons) were 5 percent lower than in the previous month, according to reports by producers to the U. S. Bureau of Mines. Agricultural, building, chemical and other industrial uses were lower than in April, but an increase was noted for refractory use.

The table shows sales by types and major uses.

Monarch Cement Company To Construct New Shale Crushing and Drying Plant

A new shale crushing and drying plant costing $750,000 will be constructed by Monarch Cement Company, Humboldt, Kans., just west of its present plant buildings, according to Walter H. Wulf, president. Work is scheduled to begin late this summer and should be completed some nine months or so later. Glen Shook, Monarch engineer, estimates the new plant will reduce the cost of processing shale by about half.

Raw shale from the quarry will be carried to the new plant by truck, eliminating train haulage. Two new Euclid trucks have already been purchased for this purpose. The shale delivered to the new structure will be crushed and dried and carried to the main plant on belt conveyors approximately 350 feet in length. The drier on order will reduce shale of 25 percent moisture content to 1.5 percent moisture content at the 96 t.p.h.

This new shale plant will take the place of the present old plant and is a part of Monarch's continuous plant modernization and improvement program designed to produce a better product and at lower cost. The new shale plant will reduce labor costs very materially, eliminating the need for about six men in this operation alone.

In addition to this major improvement, two other major additions are in the offing, namely a new rock crushing plant and a new power plant.

The Portage-Manley Sand Company of Rockton, Ill. has purchased the Aubuchon Silica Mining Company, Crystal City, Mo. The sale was made by Ellis and Edgar Aubuchon, who will no longer be connected with the company. Ivan Aubuchon will remain in charge of the Crystal City plant.

Lime Sold by Producers[1] in the United States, in Specified Periods of 1952-53, by Types and Major Uses, in Short Tons

	1953			1952
	Total First Quarter	April	May	May
By types:				
Quicklime	1,669,619	569,286	538,775	513,606
Hydrated lime	440,096	175,963	172,099	162,851
Total lime[2]	2,109,715	745,249	710,874	676,457
By uses:				
Agricultural:				
Quicklime	10,187	9,675	9,796	7,276
Hydrated lime	48,952	29,519	23,589	22,743
Total	59,139	39,194	33,385	30,019
Building:				
Quicklime	46,784	16,403	16,443	18,683
Hydrated lime	207,707	82,381	81,929	79,764
Total	254,491	98,784	98,372	98,447
Chemical and other industrial:				
Quicklime	1,023,515	351,482	318,542	321,709
Hydrated lime	181,437	64,063	66,581	61,344
Total	1,203,952	415,545	385,123	381,053
Refractory (dead-burned) dolomite	592,133	191,723	193,994	166,938

[1]Also includes a small quantity of captive tonnage (6-7 percent of the total reported herein) to maintain comparability with the annual lime statistics.
[2]Approximately 60 percent of lime produced is high calcium and 40 percent high magnesium.

New Experiment Station Of U. S. Bureau of Mines Now Under Construction

Felix Wormser, assistant secretary of the Interior for Mineral Resources, laid the cornerstone of a new building to house the Rare and Precious Metals Experiment Station of the Bureau of Mines at Reno, Nev., on August 15.

The new building was made necessary by the growing importance to industry of the rare earth minerals found in the far western United States, some of which are radioactive, and by the urgent need for the space now occupied by the Bureau, to accommodate the University of Nevada's growing engineering program.

While the station will concentrate upon the rare and precious metals and rare earth minerals of the Far West, it also will be a research center to serve the mining and metallurgical industries.

The types of ores that must be beneficiated and for which metallurgical treatments must be developed, if requirements of the Nation's economy and security are to be met, are highly refractory and of lower grade than present technology can treat effectively. Other strategic ores occurring in the region and requiring considerable research if they are to become useful include fluorspar, manganese, sulphur, talc, tungsten, any many others.

Wharton Jackson Company Named Huntley Sales Agent

Wright H. Huntley, president of Huntley Industrial Minerals, Inc., of Bishop, Calif., has announced the appointment of the Wharton Jackson Company, with offices at 99 Hudson Street, New York 13, and headquarters in the Petroleum Building, 714 West Olympic Boulevard, Los Angeles 15, California, as exclusive sales agent.

The Wharton firm will handle the wide range of nonmetallic minerals—talc, pyrophyllite, mica, asbestos, clays and special aluminum and magnesium silicate pigments—produced from mines and plants of Huntley Industrial Minerals in California, Nevada and Arizona.

Wharton Jackson, head of the sales organization, has been actively engaged in the nonmetallic minerals field, having been associated in managerial capacities with some of the largest American concerns in this field for more than 20 years. He is a member of the American Society for Testing Materials, the American Chemical Society, the American Ceramic Society, and the Rubber Division of A.C.S.

Wharton Jackson

Offices will be maintained in both New York and Los Angeles. Mr. Jackson will move to Los Angeles to make his headquarters there.

Geologists of the California State Division of Mines have discovered an extensive deposit of rock perlite in the Pinnacles National Monument, San Benito County, about 30 mi. southwest of Salinas. The perlite is exposed along Chalone creek.

Uneven Trends Shown In 1952 Annual Reports Of Nonmetals Producers

Sales and profits reported for nonmetallic mineral products businesses during 1952 showed an improvement from the 1951 figures for some, a decline for others.

Gross sales of the Freeport Sulphur Company in 1952 amounted to $38,268,895, as compared with $34,756,810 in 1951. Net income last year was $7,325,750, against $6,308,897 in 1951; and earnings per share rose to $3.05 in 1952 from $2.63 the previous year.

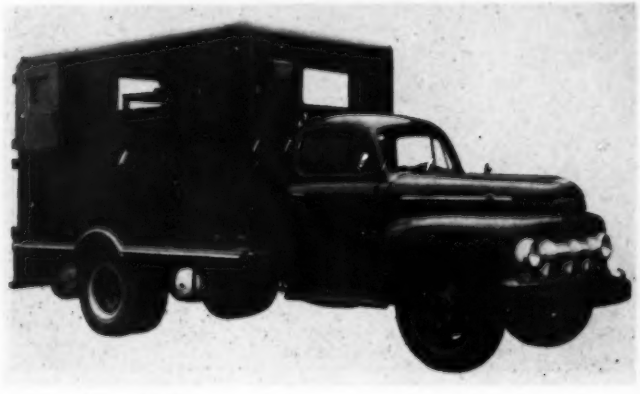
The Colonial Sand and Stone Company, Inc., New York, N. Y., and its subsidiaries reported net sales of $24,243,422 in 1952, against $21,576,484 the previous year. Net profit for last year amounted to $742,417, as compared with $402,693 in 1951.

Net profit of the Kelley Island Lime and Transport Company, Cleveland, Ohio, for 1952 was $678,325 ($2.19 per common share), as compared with $1,100,604 ($3.56 per share) in 1951.

An important Canadian concern, Gypsum, Lime & Alabastine, Canada, Ltd., Paris, Ont., reported a decline in net profit, a drop from $1,613,235 in 1951 to $1,132,878 in 1952. In spite of the dip in annual profit, there was such an improvement in the last half of the year that an all-time high was established in sales for this period. Expenditures for new projects and installations during the year partially accounted for the reduction in earnings. These outlays included a new hydrating plant at Beachville; additions to the plaster and board plant and development of the No. 2 shaft at Caledonia; purchase of extensive limestone deposits and gypsum rock; and a warehouse at Caledonia.

Pennsylvania Glass Sand Corporation, Lewiston, Pa., showed a net take of $1,928,068 last year. ($2.75 per share), against $2,082,324 ($2.99 per share) in 1951.

• These two views show a new truck-mounted mobile soils testing laboratory developed by Soiltest, Inc., Chicago, Ill. The mobile laboratory is designed for use in field testing of soils in the design and control of construction for dams, levees, roads, airfields, pipe lines, and similar structures. The laboratory, a self-contained unit, is equipped to perform standard soil tests for grain size, liquid limit, plastic limit, shrinkage limit, specific gravity, compaction, field density, load bearing and permeability, etc. . . . .



J. D. Hitch Jr. Named Dorr Co. President Succeeding E. R. Ramsey

Dr. John V. N. Dorr, founder and Chairman of the Board of The Dorr Company, Engineers, announced recently that J. Delano Hitch, Jr., presently executive vice-president, has been elected president, to take effect September 1,

J. D. Hitch Jr., Dorr president.

1953. On that date E. R. Ramsey, currently president, having reached 65 years of age, retires in accordance with company policy, after having served the company for 39 years; he has been elected Vice-Chairman of the Board, will continue as a director of the company and, in addition, will serve it as a consultant.

Mr. Hitch, the new president of the 50-year-old engineering enterprise, received his academic training at the Harvard Engineering School, Class of 1927, where he took the course in civil engineering. He started work for the company in 1927 as a field engineer and then as a sales engineer in the Los Angeles and Chicago offices respectively. In January, 1929, he became Far Eastern Representative for the company, with headquarters in Tokyo, and in 1935 was appointed Export Manager. He returned to the General Offices, then in New York, in 1937 in this same capacity.

For the last six months of World War II, beginning early in 1945, he went to China as technical advisor to the O.S.S. In 1946, he was elected a director of the company and vice-president in charge of sales and on January 1, 1952, executive vice-president. He is a member of the A.I.M.E., the Mining and Metallurgical Society of America, and several other engineering societies and clubs.

Mr. Ramsey is a graduate of the Colorado School of Mines (1912). After two years of mining, milling and construction experience in various western mines and mills, he joined the Dorr Company in 1914 in Denver, filling consecutively the positions of junior engineer, senior engineer, western manager of the sales department, assistant general sales manager and executive assistant to the president.

In 1935 he was made a director of the

E. R. Ramsey, retiring Dorr Co. president.

company and a member of its executive committee. He became vice-president in charge of engineering in 1944, operating vice-president in 1946 and president in 1949. He is also a member of the A.I.M.E. and numerous other societies and clubs.

The last of the wooden talc mills of the International Talc Company at Hailesboro, N. Y., has been condemned and will be torn down, company officials announced. The 128-year-old mill, now abandoned, had been used as a carding mill, a woolen mill and a talc mill for more than 123 years of uninterrupted service. The mill produced talc for the company since the company began operations here 60 years ago.

International Nickel Uses Newly Developed Method For Igniting Safety Fuse

Igniter cord, a new device developed by E. I. du Pont de Nemours & Co. Inc. and said to be safer and more efficient than older methods for igniting safety fuse, has been adopted by The International Nickel Company of Canada, Ltd., for use in drift driving at its mines in the Sudbury District of Ontario. In use now after exhaustive tests at Inco's mines, igniter cord requires a blaster to remain at the loaded face only long enough to light a single fuse, instead of having to light the fuse in each drill hole separately.

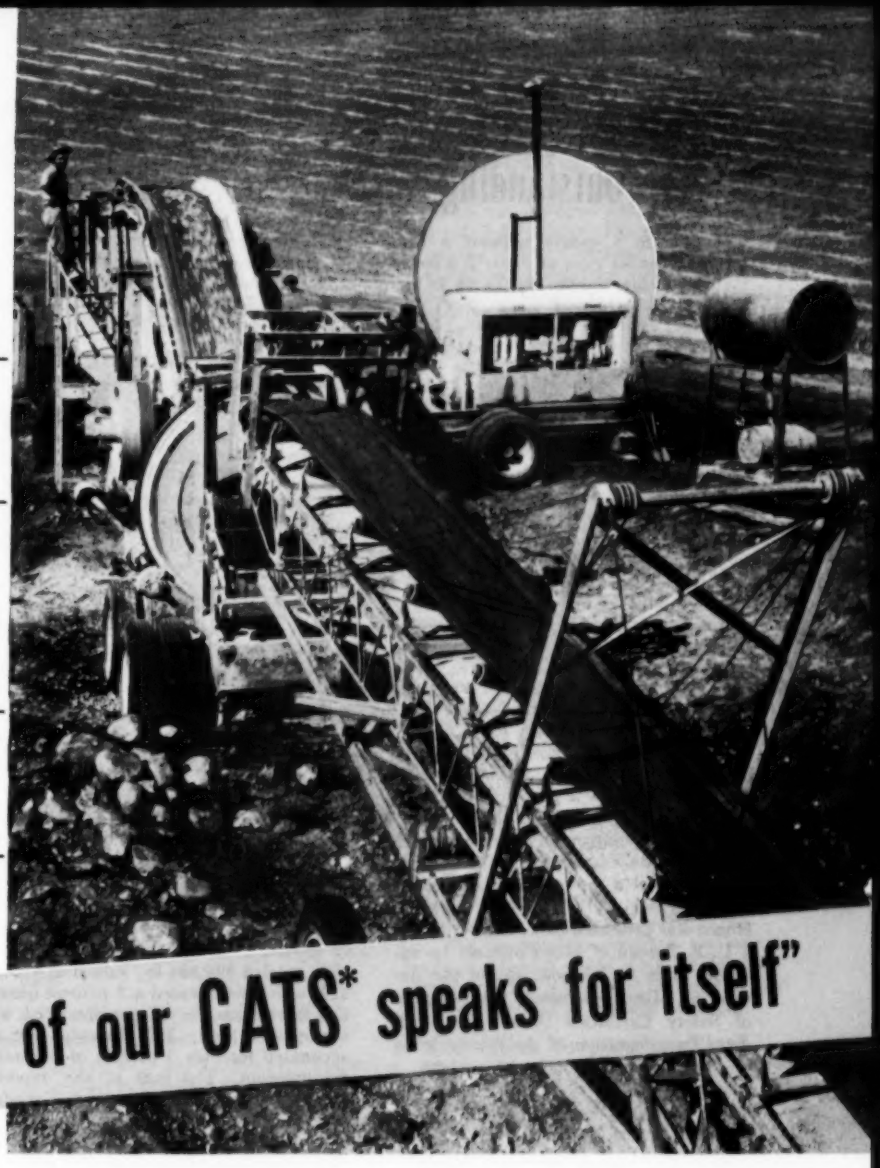
The chief aim in International Nickel's development of igniter cord was the safety advantage gained through having to light only one fuse. This is particularly desirable where the path of retreat from the working place is difficult and time-consuming, or where staging has to be removed. With the use of igniter cord it is possible to delay the actual lighting of the round for a considerable time by employing a fuse of sufficient length as a "master fuse" so that the igniter cord circuit is not lit until everyone has reached a place of safety.

All fuses in a loaded face are connected to the igniter cord in the order in which it is desired to detonate the holes. When lit, the igniter cord burns along its length with an external flame at the zone of burning. The flame, usually short and quite hot, in turn lights the safety fuses in rotation. To prevent cutoffs, the length of igniter cord used in any series is of such length that each safety fuse in the series is burning well within the hole before preceding holes in the series are exploded.

The type of cord used at the Inco mines burns at approximately 20 seconds per foot, and is designed to meet the conditions encountered in development rounds or locations where the holes are drilled relatively close together. Another type of cord with a burning speed of about eight to ten seconds per foot is designed for use in conjunction with safety fuse in achieving rotation firing on stope breasts where the holes may be collared from two to four feet apart.

One "light" for 35 fuses. A miner is showing how igniter cord is used to connect fuses in a series of 35 drill holes (not all shown) in an International Nickel underground mine. With this new device it is necessary for a blaster to remain at the loaded face only long enough to light a single fuse, instead of having to light the fuse in each drill hole separately. The holes may be detonated in any desired sequence.

42 YARDS PER GALLON... NO DOWN TIME...



"The performance of our CATS* speaks for itself"

Under dusty, difficult conditions, this Caterpillar D13000 Diesel Engine powers a Cedarapids portable crusher for the Steve R. Oberg Construction Co. of Sioux Falls, South Dakota. The plant—36″ jaw crusher, roll crusher, and conveyors—averages 1,850 yards of ¾″ aggregate per 11-hour day. Its rugged Cat Engine has run for two years with no down time.

The Caterpillar Diesel produces 42 yards of aggregate for every gallon of fuel! It can deliver a full 150 HP, or idle *without fouling*, on low-cost No. 2 furnace oil. Result: a three-way saving. Cat Engines cost less to maintain, use cheaper fuel and burn less of it.

A mere three ounces of dust can ruin the finest engine in less than 1,000 hours! Efficient seals and filters protect Caterpillar Engines by keeping oil *in* and dirt *out*. They stop harmful abrasive particles.

Oberg Construction Co. has, in addition to its D13000, a Caterpillar D8 Tractor and two No. 12 Motor Graders on tough and dusty work. Here is what E. G. Oberg says: "All our Caterpillar products have given very satisfactory and economical service. We never have any down time with them. THE PERFORMANCE OF OUR CATS SPEAKS FOR ITSELF."

Leading manufacturers can supply Caterpillar power in their equipment. Insist on Caterpillar Diesels when you order new machinery, or repower your old equipment. Your Caterpillar Dealer will show you the Diesel that is *right* for your needs. You can rely on him to provide fast, dependable service, day or night.

Caterpillar Tractor Co., Peoria, Illinois.

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WE'VE MADE CLAIMS... NOW MAKE US PROVE THEM

National Gypsum Quarry Personnel Honored For Outstanding 15-Year Safety Record

To operate a quarry without a lost time accident for even one year is a commendable achievement. But to do so for fifteen consecutive years is an almost unbelievable accomplishment. Yet such an outstanding record was attained by the quarrymen of the National Gypsum Company, National City, Michigan.

Beginning August 1, 1938, and extending to the present time, the National City quarry was operated a total of 790,290 man-hours without a lost-time accident. During the fifteen-year period some 2,695,700 tons of gyprock were quarried to be used in plaster and wallboard production at the company's National City plant. In honor of the quarry personnel who established this record, National Gypsum Company held a safety banquet at Tawas City, Mich. Thirty-one quarrymen were presented individual awards at the banquet. In addition, three special awards were given to the company. One award, the National Safety Council Certificate of Commendation, was presented by Arthur S. Kelly, senior engineer of the N.S.C., Chicago, to Frank Smith, a shovel operator and the oldest quarry employee in point of service, who represented the quarry personnel. Mr. Kelly also delivered a fine tribute to the men. The Joseph A. Holmes Certificate of Honor was presented by Paul T. Allsman, a U. S. Bureau of Mines official. In addition, John A. Johnson, also of the Bureau of Mines, presented the Sentinels of Safety Certificate Award for 1952, given in recognition of the quarry being operated 50,041 man-hours without a lost time accident in 1952.

Several officials from the Buffalo, N. Y., headquarters of National Gypsum Company were present at the banquet, including Lewis R. Sanderson, company president; Merle C. M. Pollard, safety director; and Robert E. Scifres, production manager of the Gypsum Division. Mr. Sanderson, the principal guest speaker, very warmly congratulated the quarrymen for their fine safety record. Mr. Pollard and Mr. Scifres also spoke briefly.

Other guest speakers included Kenneth A. Gutschick, PIT AND QUARRY magazine, and Bror Nordberg, *Rock Products* magazine. Both speakers pointed out that this achievement is probably the record for the quarry industry and that the men should be extremely proud of their record. C. M. Hill, plant manager of the National City operation, served as master of ceremonies.

Halliburton Day Celebrated At Duncan, Okla., Plant

May 1, besides being May Day in Duncan, Okla., was Erle P. Halliburton Day, so designated in honor of Mr. Halliburton, founder of the Halliburton Portland Cement Company at Corpus Christi, Tex., and the Halliburton Oil Well Cementing Company at Duncan.

Oklahoma's Governor Johnston Murray commissioned Mr. Halliburton a colonel and presented greetings from governors of 22 oil-producing states and Alaska. From a small beginning in 1921, when the oil-well cementing business was founded with ten employees, the Halliburton enterprises have expanded until today 6,000 workers are on the combined staffs.

Domestic Sheet Mica Output Increases Slightly in 1951

Domestic production of sheet mica during 1951 remained small in terms of world production, but the United States continued to be the principal producer of ground mica. Sheet mica output in 1951 totaled 594,884 lb., valued at $160,322, which represented a 3 percent quantity increase and a 26 percent value increase over 1950. This domestic output accounted for only 3 percent of the total consumption. The bulk of the imports came from India, Madagascar, Canada, Mexico, and South Africa.

Of the five states reporting production, North Carolina ranked first with 464,949 lb., which was 78 percent of the total domestic output. South Dakota did not report any production in 1951. North Carolina output dropped 4 percent.

Sales of scrap mica, including reclaimed mica, to grinders in 1951 totaled 71,871 short tons, valued at $1,884,087, which represents an all-time high for the industry. Of that total, scrap mica amounted to 59,514 short tons, valued at $1,475,059; and reclaimed mica, recovered from kaolin and mica schist, totalled 12,357 tons, valued at $409,028.

Consumption of sheet mica, block, film, and splittings amounted to 17,465,024 lb., representing a moderate increase over the previous year. A total of 13,379,295 lb. of mica splittings were consumed during 1951; approximately 92 percent of that amount was imported from India.

S. W. Portland Cement Co. Speeds Victorville Expansion

George E. Warren, president of the Southwestern Portland Cement Company has reported that the firm is pushing its expansion of production at the Victorville, Calif., plant. Mr. Warren indicated that when present plans have been carried out, total capacity will be nearly double that of 1945.

Included in the expansion will be additional machinery and equipment in all departments, enlargement of quarry and transportation facilities, and an improved clinker-producing system. The project also involves the installation of an additional kiln.

The Hughes-Vertin Lime Company is installing a third rotary kiln at a cost of $100,000 as part of a program to increase output and diversify its products.

Left: Guest speakers at the National Gypsum Company safety banquet honoring the National City quarry personnel include Kenneth A. Gutschick, Pit and Quarry magazine; L. R. Sanderson, president, National Gypsum Co., Buffalo, N.Y.; C. H. Hill, plant manager, National City operation; and Bror Nordberg, Rock Products magazine. Right: Arthur Kelly, senior engineer, National Safety Council, presenting N. S. C. Certificate of Commendation to Frank Smith, oldest quarry employee in point of service, who represented the quarry personnel.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

SAFETY and fire prevention were features of the September, 1923, issue of PIT AND QUARRY. The editorial was a strong plea for producers to carry adequate fire insurance and to take all possible steps to prevent fires in their plants. Those with water available were urged to install their own fire protection systems. The training of employees to fight fires effectively was also stressed. It was pointed out that, even if a plant is fully insured, a fire is often disastrous due to the loss of business before production can be resumed.

This editorial could very well have been inspired by the number of items in that issue about plants destroyed or seriously damaged by fire. The Bound Brook Crushed Stone Company had its plant at Bound Brook, N. J., completely destroyed by fire at a loss of $250,000. Plans were being made for rebuilding. The Alpena, Mich., plant of the Huron Portland Cement Company was seriously damaged by fire and suffered considerable production loss. The John Evans Lime & Stone Company, Marion, Ohio, suffered a fire loss of $25,000.

In this issue also was the program for the 12th Annual Safety Congress of the National Safety Council. This was presented with an editorial comment that the only nonmetallic minerals industry represented on the program was the cement industry, and that the omission of the aggregates industries should be remedied.

There was also much activity in the expansion of the cement industry. The new plant of the Hermitage Portland Cement Company at Nashville, Tenn., was reported nearing completion. Ground was broken on March 20 and operation was expected to begin in September. If the latter date was met, a speed record was probably set.

The Kansas Portland Cement Company was reported ready to commence work on its proposed new $1,000,000 plant at Bonner Springs, Kans. This was to be ready early in 1924. The Southeastern Portland Cement Company was recently organized to build a $2,000,000 plant at Ainslie, 27 miles south of Macon, Ga. The Trinity Portland Cement Company announced the purchase of land for a 2,500-bbl. plant to be built north of Fort Worth, Texas. The Yosemite Portland Cement Company announced plans for a $1,500,000 plant to be built near Merced, Calif. All of these plants were subsequently built.

The Portland Cement Company was reported planning a new plant near Pocatello, Idaho. The Southland Portland Cement Company was formed to build a new $1,000,000 plant at Crab Orchard, Tenn. The Pyramid Portland Cement Company was formed to build a plant near Des Moines, Iowa. The Kerr Portland Cement Company of Moundsville, W. Va., was incorporated for $2,000,000.

Another item told of the incorporation of the Palmetto Quarries Company with plans to build a crushed stone plant at Columbia, S. C. Thomas C. Walters was president, and George D. Lott was secretary-treasurer.

This issue also had operating articles on three outstanding sand and gravel plants. The feature article described the modern 1,000 ton per day plant of the Arrow Sand Company at Columbus, Ohio, which was designed and built in 1921 by Stephen Stepanian. The new plant of the Saticoy Rock Company near Ventura, Calif., was notable for its high degree of mechanization and low labor requirement. The Boonville Sand Corporation's plant at Boonville, N. Y., featured a bank caving method of recovering a stratified deposit in order to obtain a blend of the different sizes of materials in the various strata. Stiff-leg derricks with clamshell buckets were used to feed the material to the plant.

$1,000,000 Slag Plant Planned By Three Firms in Canada

A $1,000,000 plant, to be erected "in the immediate future," is to be built near Hamilton, Ont., on property previously owned by the National Steel Car Corporation Limited.

To be known as National Slag Ltd., the new company is equally owned by Canada Crushed and Cut Stone Ltd., Hamilton, Standard Paving and Materials Ltd., Toronto, and Buffalo Slag Company, Incorporated.

National Slag will process blast furnace slag for concrete aggregate under agreement with various steel producers, including The Steel Company of Canada, Ltd. No definite date or quantity of production has yet been given out preliminary plans have already been drawn up by engineers of the Buffalo Slag Company.

Johns-Manville Acquires New Canadian Asbestos Reserves

Purchase of a newly discovered asbestos ore deposit in northern Ontario as part of Johns-Manville's long range plan to maintain adequate reserves of asbestos ore, was announced recently by A. R. Fisher, president of Johns-Manville Corporation. The property is in the same general area as Johns-Manville's Munro mine and mill, near Matheson, Ontario. This tract was acquired as a result of Johns-Manville's exploration program which has been sharply accelerated since the end of World War II.

No plans have been made to establish production facilities on the new property at the present time as there is ample asbestos production capacity in Canada and in other areas of the free world, according to Mr. Fisher. He reported that production of and demand for asbestos fiber are now in balance and forecasts indicate that this situation will continue for some time.

In 1950 Johns-Manville completed construction on the Munro mine and mill and has since acquired additional ore bodies in its vicinity. The company is also directing the development of asbestos ore properties in Southern Rhodesia, where a new mill is under construction with operations expected to start in early 1954.

The company also operates the largest asbestos deposit in the world at Asbestos, Quebec. The first section of a new mill is to be completed at this site next year.

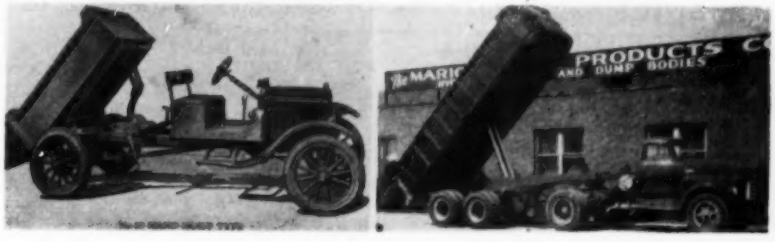
New Silica Corporation Plant Opened in Tennessee

The Silica Corporation, a subsidiary of the Hardy Sand Company, Evansville, Ind., began a new operation near Camden, Tenn., on August 10. The new plant has washing, drying, and screening facilities, and it announces sand primarily for the foundry industry, but also for building purposes.

In order to meet individual foundry specifications, the plant can produce washed and dried sands ranging from 35 to 110 grain fineness.

A new wage contract has been signed by the directors of Lone Star Cement Corporation plant at Botetourt County, Va., and 150 union employees. A general five percent wage increase and a more liberal vacation pay policy become effective Aug. 31.

● Dump bodies have come a long way since the '20's, Marion Metal Products Company points out, noting its 30th birthday. A ton was a big load for early hand-hoist models, such as that mounted on a Ford (left). Today's Marions have twin-telescopic hydraulic hoists, carry as much as 61 cu. yd., and are styled like the trailer unit (right) hauled by a G.M.C. diesel. J. L. Halberstein is chairman of Marion's board and G. E. Herr is president and general manager.



N.L.A.'s Operating Division To Hold Annual Meeting in Birmingham, Ala.

The eighth annual operating meeting of the Operating Division of the National Lime Association will be held on October 12 to 14 at the Tutwiler Hotel in Birmingham , Ala. It will be the first annual N.L.A. meeting in the deep South.

The meeting features inspection tours of a slag cement plant and several lime plants located in the Birmingham area. In addition a number of forums will be held covering many aspects of the lime industry. Program chairman for this year's meeting is M. A. Rikard, Southern Cement Company, Birmingham.

The following is a tentative program covering the three-day meeting:

MONDAY, OCTOBER 12

8:00 a.m.—Registration—Lobby of Tutwiler Hotel.

8:30 a.m.—Chartered bus leaves hotel for inspection tour of Southern Cement Company's North Birmingham Slag Cement Plant (featuring the use of hydrated lime in mortar materials).

10:00 a.m.—Bus leaves Southern Cement's plant for inspection tour of Keystone Lime Works, Inc., Keystone, Alabama, and Alabaster Lime Company, Alabaster, Ala.

1:00 p.m.—Lunch at Keystone Lime Works, Inc.

2:00 p.m.—Chartered bus leaves Keystone for inspection tour of Cheney Lime and Cement Company, Landmark, Ala.

3:30 p.m.—Bus leaves Cheney Lime and Cement Company's plant for inspection tour of Southern Cement Company's lime plant at Roberta, Ala.

5:30 p.m.—Bus leaves Roberta, Ala., for the Ard's Camp "Certirest."

6:00 p.m.—A real Southern Style Barbecue (with pork, lamb, beef, and all the trimmings). Shuffleboard, ping-pong, horseshoe pitching. (Compliments of Alabaster Lime Company, Cheney Lime and Cement Company, Keystone Lime Works, and Southern Cement Company.)

TUESDAY, OCTOBER 13

8:00 a.m.—Assembly in Terrace Room of Tutwiler Hotel.

8:30 a.m.—Opening of Meeting, by F. J. Collins of The Kelley Island Lime and Transport Company, Operating Division chairman.

8:45 a.m —Forum covering "Quarrying, Mining, and Preparation of Stone for Lime Burning." J. V. Andrews, The Kelley Island Lime and Transport Company - panel moderator. Panel members: L. E. Smith, The Kelly Island Lime and Transport Co.; H. E. Gustafson, National Gypsum Co.; D. M. Kerr, Kaiser Aluminum & Chemical Corp.; J. G. Wilson, Warner Company.

10:00 a.m.—Forum covering "Lime Burning of Dolomitic and High-Calcium Stone in Rotary and Vertical Kilns." A. C. Hewitt, Warner Co., panel moderator. Panel members: Casper Arndt, T. E. Millard Lime and Stone Co.; Victor J. Azbe, Azbe Corp.; W. V. Hammond, Keystone Lime Works, Inc.; Hermann Lange, Hohenlimburger Kalkwerke, Hohenlimburg, Germany.

11:30 a.m.—Adjournment for Lunch.

1:30 p.m.—Forum covering "Product and Quality Control in the Lime Industry." L. N. Carmouche, The Dow Chemical Company - panel moderator. Panel members: W. J. Barrett, New England Lime Co.; Donald G. Hamme, National Gypsum Co.; L. John Minnick, G. & W. H. Corson, Inc.; G. W. Talbott, Imperial Chemical Industries, Ltd., Lime Division, Derbyshire, England.

3:00 p.m.—Forum covering "Safety in the Lime Industry." Lea P. Warner, Jr., Warner Co. - panel moderator. Panel members: members of National Lime Association Safety Committee working with Mr. Warner.

7:00 p.m.—Cocktail party and dinner at "The Club" (on top of Red Mountain, overlooking the city of Birmingham). Dinner music and dancing. (Refreshments compliments of St. Regis Paper Company and International Paper Company.)

WEDNESDAY, OCTOBER 14

8:30 a.m.—Terrace Room of Tutwiler Hotel. Forum covering "Lime Consumption as Applied by Large Users." C. C. Loomis, New England Lime Co. - panel moderator. Panel members: Hayden Brooks, Blue Diamond Co., representing Building Industry; H. O. Tittel, Plant Manager, Monsanto Chemical Co.; Technical Director, representing Gulf States Paper Company, Tuscaloosa, Ala.; Technical Director, representing Tennessee Coal & Iron Division, U. S. Steel Corp.

10:00 a.m.—Election of 1954 Operating Division Program Chairman. Discussion of Manufacturing Costs in the Lime Industry. Announcements—Robert S. Boynton, general manager, N.L.A., presiding.

Note: The meeting will be open only to representatives of member companies and guests. All ladies who plan to attend this meeting are invited to the Barbecue and Party planned for Monday and Tuesday evenings. In addition a committee of Birmingham ladies have arranged a Sightseeing Tour for Monday, and a Luncheon at one of the Birmingham Country Clubs for Tuesday.

1952 U.S. Sulphur Production Reaches New High Levels

In 1952 new records were established in the production of both native and recovered sulphur in the United States, according to reports of producers to the U.S. Bureau of Mines. Native sulphur production totaled 5,293,145 long tons, as compared with 5,278,249 in 1951. The monthly tonnage varied from a low of 412,481 in February up to 477,939 in July. The rate of output was high between April and August, but it was lower in the last quarter. In December production was down to 422,560 long tons.

During the year the Texas Gulf Sulphur Company reported production of 2,957,557 long tons; Freeport Sulphur Company, 1,691,995; Jefferson Lake Sulphur Company, 405,383; and Duval Sulphur & Potash Company, 238,210.

In 1952 the Texas Gulf Sulphur Company was expanding production capacity at Moss Bluff dome and in May the company began mining at Spindletop dome. Both of these deposits are in Texas.

Production of sulphur at the Bay St. Elaine dome in Louisiana was started by the Freeport Sulphur Company in November. Freeport was also proceeding with the development of the Garden Island Bay and Chacahoula domes in Louisiana and the Nash dome in Texas.

Stocks held by producers of Frasch sulphur increased from 2,837,432 long tons at the beginning of the year to 3,068,855 at the end. Industry stocks are still considered to be lower than desirable, and further rebuilding of inventories is anticipated.

Sales of native sulphur were nearly the same in both years, the 5,061,722 long tons sold in 1952 being less than 1 percent below the 1951 figure.

Production of recovered sulphur at gas treatment plants increased from 184,013 long tons in 1951 to 248,076 in 1952. This increase is a result of the expansion programs of companies processing sour natural gas. A further increase in recovery of this type of sulphur is expected in the coming year.

Expanded Production Planned By Iraqi Sulphur Concern

According to a Washington, D. C., publication, the Iraq Sulphur Company, which began operations in August of 1952, mined about 3,500 metric tons of ore in the first three months. Officials hope to increase production by 1,000 tons of pure sulphur per month, but indicate that additional equipment is needed. Most of the 1952 output was reduced to crude sulphur by the Calcarone process and transported to the refinery at Baghdad.

It is planned to make geological surveys of four plots on which the company holds concessions and to obtain additional concessions from the government for the future expansion of the industry.

Canadian Rock Salt Company Operating Mine Near Windsor

A newly-acquired property of the Canadian Salt Company near Windsor, Ont., is being worked by a wholly-owned subsidiary of the company, the Canadian Rock Salt Company, which was formed for this purpose. All grades of industrial and highway maintenance rock salt will be produced. Present plans include docking facilities on this property and high-speed belt conveyors for cutting down the time for loading bulk boats or other carriers.

Rock salt mining in dry form is new to this part of Canada. The only other mine of this type currently in operation is that of the Malagash Salt Company at Malagash, Nova Scotia, another Canadian Salt subsidiary.

QUARRY MAINTENANCE

By J. DEAN DAVIDSON

General Manager
Davidson Granite Company
(Stone Mountain Grit Company)
Lithonia, Ga.

(Presented at the 1953 Annual Meeting, International Acetylene Association, Atlanta, Ga., April 13-15, 1953)

A PAPER on quarry maintenance covers a variety of jobs and maintenance problems. The Davidson Granite Company produces both building and crushed stone. Therefore our operations embrace those problems common to both the crushed stone and the dimension stone industries. As would be expected, the type of operations and processing equipment are not all similar. Crushed stone production requires the maintenance of electric and diesel shovels, crushers, and screening equipment, while the dimension stone work requires that gang saws and other shaping and finishing equipment be kept in first class operating condition.

In outlining and summarizing some of our more common oxy-acetylene maintenance jobs, we find that most of them can be classified under the following three headings: Heavy heating with the oxy-acetylene flame, oxy-acetylene welding, and those jobs in which the oxygen cutting processes are involved. In the slides to follow we have grouped the jobs illustrated under these classifications. The first grouping to be illustrated is heavy heating.

Fig. 1. View of 2½-cu. yd. shovel used at Davidson Granite Company, Lithonia, Ga. This article discusses a method used by the company for straightening bent dipper sticks on the shovel right in place through the use of oxy-acetylene heavy heating.

Heavy Heating Figure 1 is a general view of one of our Northwest Type 80D, 2½-cu. yd. capacity shovels used on the floor of the quarry for loading. These shovels are subjected to very heavy usage, particularly in sweeping the quarry floor at the edge of the muck pile. In this sweeping operation there is tremendous lateral stress on the two dipper sticks that can be seen here supporting the dipper. As a result, these dipper sticks become bent, in spite of their heavy construction. Through the use of oxy-acetylene heating or more properly "flame shrinking", these bent "sticks" are straightened right in place with the minimum of lost shovel time.

Figure 2 shows the start of the operation in straightening the dipper stick. The operator has stretched a line to determine the extent and point at which the sticks are bent. Bow in these dipper sticks results in loose motion, making accurate control of the dipper or bucket impossible, and thus resulting in lower shovel efficiency. The dipper sticks are in reality steel box beams, measuring 6 in. by 12 in. fabricated of welded 1-in. thick steel plate.

Fig. 2. In beginning the operation of straightening the dipper sticks, a workman stretches a line to determine the extent and point of bending.

Figure 3 shows that the operator has picked out the point of the bend from the cord stretched in the previous slide and has marked out the point at which heat will be applied. This marked area is really V-shaped, the apex of the V being on the inner side of the top and bottom of the beam. We have found that heating an area the size of this marked will straighten the stick or beam ½ in. If less than this bend is required, we reduce the size of the section to be heated proportionately. If more bend is necessary, we mark off additional V's and heat them as required.

In Figure 4 two operators are heating the marked out section. The V shape of the heated area can easily be seen here. Both operators are using heavy multi-flame heating heads with a number of small flames on each heating tip, rather than a single large flame port as is usual on

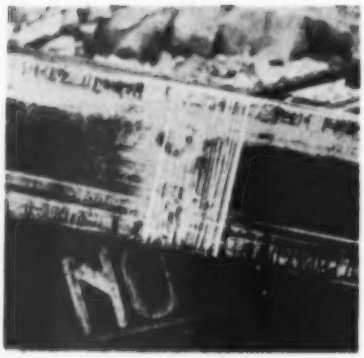


Fig. 3. The bent section is marked out for heavy heating.

Fig. 4. The marked V-shaped area is heated with two torches equipped with heavy multi-flame tips.

Fig. 5. Operators have nearly finished the heating operations. Straightening occurs when the dipper stick cools and contracts.

standard oxy-acetylene tips. Notice that the long side of the V-shaped heated area is toward the outside of the bend. This method of straightening does not depend on jacks or physical force to straighten the member, but on the contraction of the metal after heating. The long side of the V-shaped area being towards the outside (convex side of the bend), it contracts more than the apex side of the V, and consequently the outer or convex side of the stick is shortened when cooling is complete. After this heated section has cooled, the operator again rechecks the stick with piano wire or a cord stretched tight and repeats this procedure at the needed point. One, two, or even three heats may be required to straighten a very badly bent stick.

The average time required to bring the section outlined in chalk to a red heat is 6 to 8 minutes, after which the beam is allowed to cool normally in air. It is important to use relatively large heating heads in this type of operation to confine the heat to the chalk-marked areas before appreciable amounts of heat can spread to adjacent parts of the beam. The inside surface of the beam is not heated at all.

The operators have nearly finished the heating operation in this view (Figure 5) with only a little heat still required on the top and bottom of the stick.

Figure 6 shows that the cord has been stretched to check on the straightening job. As can be seen, the stick is straight. The operator here is sighting down the cord and dipper stick, and the job appears to be completed.

The crew is on the truck ready to return to the shops and the shovel is ready to return to loading rock. The total time on the average job requiring the straightening of both sticks is approximately 3 hours for an oxy-acetylene operator and helper. This time can be fitted in easily any time a shovel is idle, since no dismantling is required. Minimum downtime and maximum shovel efficiency are goals in every quarry, and flame shrinking helps us to achieve both. This straightening work is a standard operation in our quarry.

Fig. 6. The straightening job is checked by stretching the cord along the dipper stick.

Figure 7 is a flame shrinking job of a different and heavier type. This view shows an eccentric or pitman shaft for a 24- by 36-in. Traylor jaw crusher. This shaft measures 13 in. in diameter and is approximately 10 ft. long, weighing 1¼ tons. The shaft becomes bent under heavy crushing conditions and must be straightened or replaced. The operator here has the shaft in a lathe and is marking out the point of bend. The point of bend has been determined and the area to be heated has been marked. This shaft is bent about ⅜ in. and will require three heats of the area shown for straightening.

Figure 8 shows the operators heating the marked out area. Again two heavy multiflame heating torches are used. It takes approximately 15 minutes to bring the area marked to a dull red heat (1500 deg. F.).

We have found that it is best to heat and then allow plenty of time for the shaft to cool naturally. Standard practice is to heat once a day, although when rushed, we have made heats every 4 hours. Three heats straightened this shaft to within twenty-thousandths, which was within the required tolerances. Again no physical force was applied in this straightening work, the contraction of the metal in the heated area pulling the shaft true.

In addition to "flame shrinking" we use heavy heating for a number of jobs. Figure 9 shows the mantle for a 36-in. gyratory crusher. The operators are getting ready to zinc the mantle to the bell. The housing is being heated to remove moisture

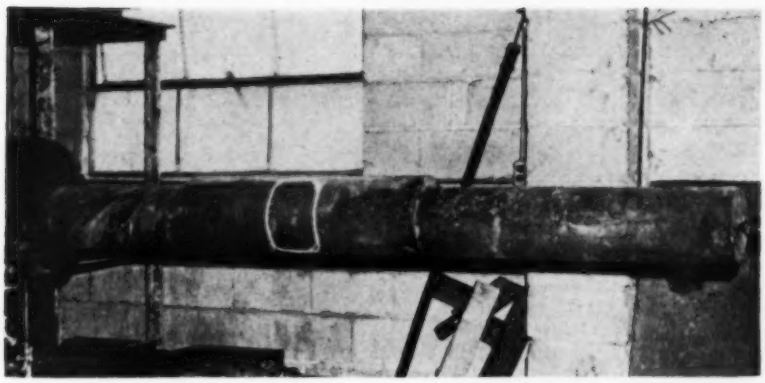


Fig. 7. Above: The eccentric shaft of a 24- by 36-in. jaw crusher placed in a lathe, with the bent path marked preparatory to flame shrinking.

Fig 8. Above, right: Workmen heating the marked out area with heavy multiflame torches.

Fig. 9. Right: Heating the mantle of a 36-in. gyratory crusher, preparatory to zincing it to the bell.

Fig. 10. Extreme right: Pouring zinc into the mantle. Previous heating reduces danger of zinc "spatter".

and gases which would cause porosity in the zinc when poured.

Figure 10 shows the zinc being poured. The previous heating removes any danger of zinc "spatter" from moisture and assures a solid job.

In Figure 11 operators are bending an "eye" on a piece of shafting for a breakdown job. On breakdown work, we have found oxy-acetylene heating invaluable for shortening the downtime. The operators will have this "eye" shaped and back on the job before the forge could be lighted.

Figure 12 shows a portable hydraulic power press rigged to press the drive sprocket shaft from the sprocket of a Northwest 80D shovel. Sometimes the job is too heavy for a portable press.

The quick heat from the oxy-acetylene flame expands the hub of the sprocket wheel before heat can soak into the shaft, and the shaft is easily pressed out.

Fig 11. Using heavy heating for rapid bending of an "eye" on a piece of shafting.

Oxy-Acetylene Welding Oxy-acetylene braze-welding also plays its part in our maintenance operations. Figure 13 shows an operator gouging out a crack in a pitman cap preparatory to braze-welding. These caps fit on the large eccentric shaft

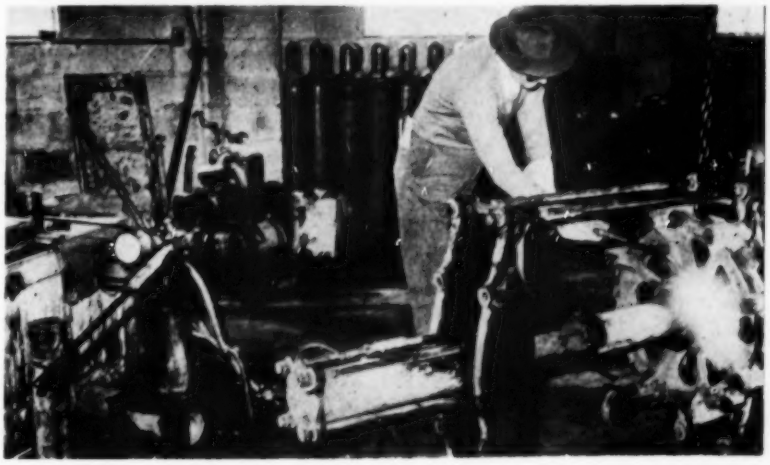


Fig. 12. A portable hydraulic power press is used for removing the drive shaft from the sprocket of a shovel. The operation is speeded up by quick-heating the hub of the sprocket wheel.

Fig. 13. Workmen gouging out a crack in a pitman cap, prior to braze-welding.

shown in the previous slides. These caps are water cooled; and when the jackets crack, the cap must be braze-welded before rebabbitting.

The oxy-acetylene gouging process provides a fast easy way to V out these cracks both outside and inside on the pitman cap work.

The operator shown in Figure 14 is brazing the cap. After braze-welding the cap, the jacket is tested at 65 lbs. water pressure before proceeding with rebabbitting.

Fig. 16. The oxy-acetylene gouging process for trimming a 6⅝-in. dia. well drill bit.

Fig. 18. Liners for the bagging machines are made by the company. They are first cut to approximate size with the oxy-acetylene flame.

Fig. 14. Braze-welding the cap.

Figure 15 shows the operator braze-welding a cracked eccentric housing. By the use of braze-welding for maintenance and repair, we are able to keep our stock of spare parts to the minimum and still operate without downtime waiting for spare parts.

Oxy-Acetylene Cutting The oxy-acetylene cutting processes play their part in the maintenance work required to keep our plant running smoothly. The oxy-acetylene gouging process has already been illustrated on a pitman cap job. Figure 16 shows an operator trimming a churn drill bit. These bits are used to drill the 6⅝-in. diameter holes 60 ft. deep required for our primary blasting. The inner courses or muck passages gradually close under repeated sharpening. The courses here are being trimmed to proper contour and depth. The bit is then sharpened and is ready for use.

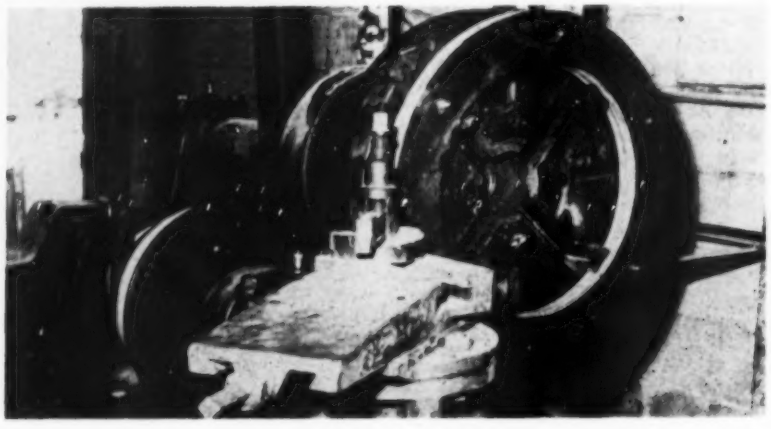
Fig. 17. Trimming a well drill bar to a chisel point in preparation for arc-welding on a new box joint end.

Fig. 15. Braze-welding a cracked eccentric housing.

The bits shown in the previous illustration are screwed into the heavy drill stem. These stems are subject to cracking and breakage at the point just above the bit under the constant abuse of drilling. A standard practice in our maintenance department is to arc-weld on a new box joint end after preparing the stem by oxy-acetylene cutting. Here the operator is starting to cut the stem end to a chisel point.

Figure 17 shows the operator completing one of the two cuts required to get a chisel point. After both sides are beveled in a similar fashion, the welding is completed, and the stem is put into spare parts stock.

Fig. 19. The liners are then machined on a lathe to the proper dimensions.



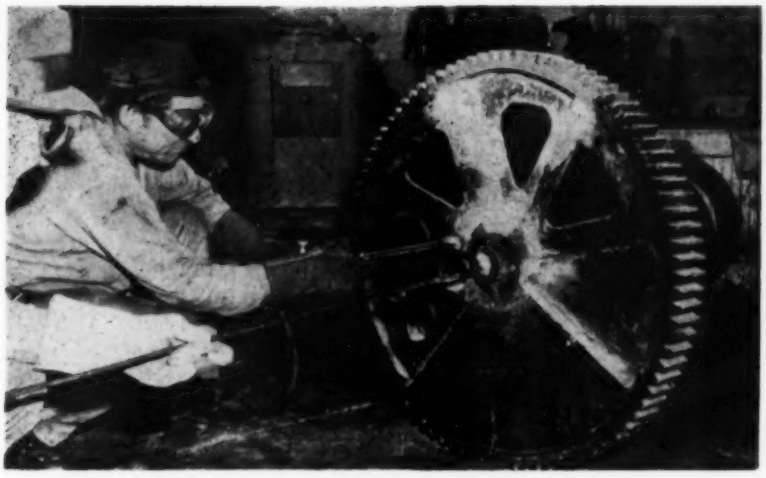


Fig. 20. An oxygen lance is used in removing the shaft "frozen" in the spudding gear of well drill. The torch initially heats the area and the lance tip.

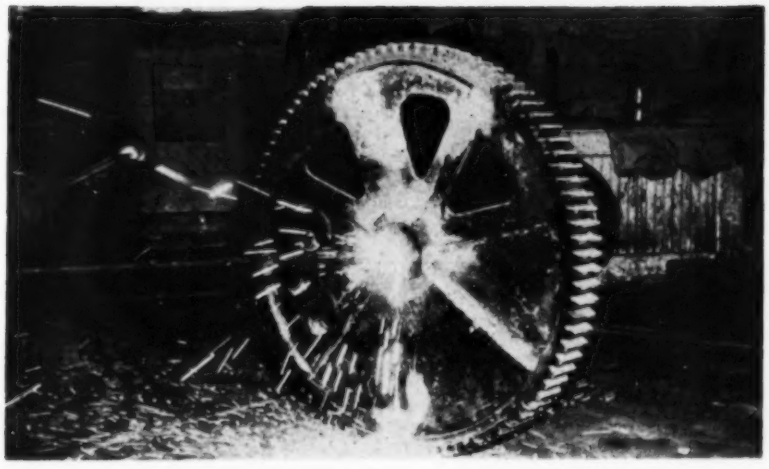


Fig. 21. The lance pipe advances, boring a hole in through the center of the shaft.

In Figure 18 are the liners used on the machines that sack the poultry grit produced in our plant. These liners are subjected to extreme abrasive wear and require periodic replacement. They are first cut to approximate size with the oxy-acetylene flame.

Fig. 22. After the hole is completely lanced through, the shaft is cooled and easily removed.

Because of the close tolerances required the liners are then stacked and swung in a lathe for machining to final dimensions (Figure 19). The fabrication of these liners in our own shops has resulted in substantial economies in the maintenance of these sacking machines.

As a final illustration of how we use oxy-acetylene cutting processes in our maintenance, this group of illustrations shows the oxygen lance used for removing a shaft "frozen" in the spudding gear from a 27-T Bucyrus Erie well drill. This shaft resisted all efforts with a hydraulic press and oxy-acetylene heating. For those not familiar with lance technique, we will describe the operation briefly. The lance itself consists of a length of ⅜-in. steel pipe hooked up to an oxygen regulator with a length of standard ⅜-in. oxygen hose. A valve on the inlet end of the pipe controls oxygen flow. In Figure 20 the operator is using a cutting blowpipe to bring the end of the lance pipe and a small spot on the shaft to a red heat. When this is accomplished, the lance operator slowly opens the oxygen lance valve.

The oxygen stream from the lance bores a hole through the center of the shafting as the lance pipe is advanced. (Figure 21.) Some of the lance pipe is consumed in the operation. After the hole is lanced through the length of the shaft, the shaft is cooled and easily removed.

Figure 22 shows the size of the hole lanced in the shafting. This method eliminates the danger of damaging the bore or keyway on the gear proper. The entire operation shown here took only a few minutes.

In the time allotted it is obviously impossible to give a complete picture of the oxy-acetylene operations performed by our maintenance department. However, the slides shown do give some idea of the variety of jobs handled and the economies that can be realized by the full utilization of oxy-acetylene processes in quarry maintenance.

Domestic Slate Production Shows Slight Decline in 1951

The domestic production of slate in 1951 was a little lower than in 1950, but the decline was primarily in sales of granules and flour. According to figures compiled by the U. S. Bureau of Mines, total production was 825,700 short tons, valued at $13,895,711. These totals represent declines of 11 percent in quantity and 8 percent in value.

Sales of roofing slate during the year amounted to 205,120 squares (197,570 squares in 1950), valued at $4,357,412 ($4,098,842 in 1950). The average value per square in 1951 was $21.24—49 cents per square higher than in 1950. Gains were confined to the Pennsylvania operations; sales in other regions declined.

Mill-stock sales declined slightly in quantity and value from the high record of 1950. The principal decline was in sales of blackboards and bulletin boards. Sales of structural and sanitary, electrical, billiard-table tops, and vaults and covers increased substantially. School-slate sales declined in quantity but increased in value.

Flagstones, including slate employed for walkways, stepping stones, and miscellaneous uses, declined 1 percent in quantity but gained 13 percent in value.

The production of granules and flour totaled 654,550 short tons, valued at $5,888,001—a decline of 14 percent in quantity and 21 percent in value.

There were 77 slate producers in 1951—17 less than in 1950. They were distributed by states as follows: 25 in Pennsylvania, 22 in Vermont, 19 in New York, 5 in Virginia, 2 in California, and 1 each in Arkansas, Georgia, Maine, and Maryland.

Screenings

by William M. Avery

THIS department has devoted a fair to middling amount of space to the brisk intercontinental movement of various stone fragments alleged to possess historical or sentimental interest. So far as we can judge our occasional comments on the subject have not moved our readers to hysteria, nor even caused any audible outbreaks of unseemly chuckling, and several times we've resolved to knuckle under to the plain fact that either the subject, or our approach to it, is completely sterile.

Before swearing off more or less permanently, however, we would like to point out that the epidemic has finally hit the sand industry. We judge this to be the case, at any rate, from a news clipping which indicates that a few weeks back a number of resorts around the country were sending buckets of sand like mad to Virginia Beach, Va., where the natives were engaged in a hoedown called a "sand festival". The restrained character of the affair is indicated in some measure by the fact that it embraces such closely related activities as the selection of Miss Universe, a demonstration of amphibious warfare, an air-sea rescue, and an unspecified performance by a simian mascot named J. Fred Muggs.

Our meager source of information suggests that the visiting buckets of sand got into the act as a gesture of good will to the Virginia Beach resort from similar playgrounds in other states. This probably isn't the least likely field on earth for goodwill to suddenly become epidemic, but just at the moment we can't conceive of one any *less* likely. We believe, therefore, that it would behoove the Virginia Beach faction to take a careful look in the donation buckets before strewing their contents about the premises. A few pounds of carpet tacks, for example, might just casually have been included with the shipments to give point to the claimed superiority of competitive retreats.

Stripcrete

IN BRISTOL, England, the other day a concrete mixer undressed a workman down to his shoes and socks. Seems the guy got his shirt tail tangled in the pinion gear, and before he could break loose the thing snatched off his vest, undershirt, pants and shorts.

Maybe the manufacturers of mixers should give heed to the possible market implications of this incident. The burlesque stage is long over-

due for some fresh approach to the stripping art, and the Bristol technique, executed to the tune of "Cement Mixer, Puti, Puti," might give the boys in baldhead row quite a bang.

Confirmation

WE'VE just received a letter from R. B. Hindman of The Marietta Concrete Corporation which provides an interesting footnote to our recent "Ride 'Em Cowboy" item. Regarding our assertion that a rodeo-like effect is bound to be created whenever two or more lift-trucks operate simultaneously in the same general area, Mr. Hindman writes: "I thought you might be interested to know that while I was at the plant of Cinder Products in Cincinnati I observed the skillful and high-speed handling of the forks. Ed Johnson, the owner, informed me that his drivers are also owners and drivers of stock car racers and in their spare time they have 'hopped up' his lift-trucks. It certainly was exciting."

Annexation

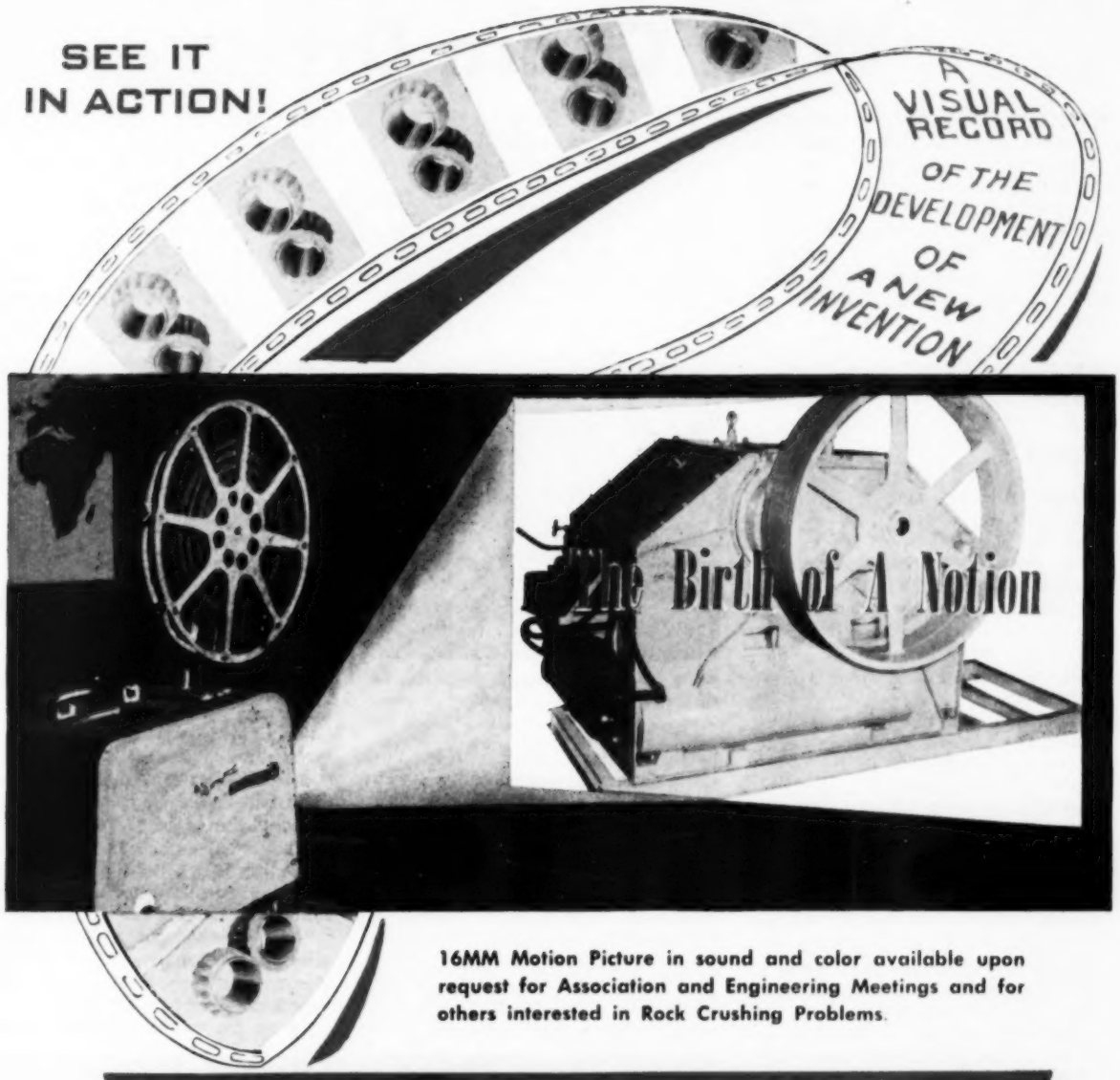
A NEWSPAPER clipping we've just received says that "Texcrete Hayride Building Blocks" have withstood the test of service in thousands of structures. That's the trouble with those Texans—they won't even let a neighboring state hang onto a piffling little distinction like a song entitled *Louisiana Hayride*.

Damning With Faint Praise

THE caption which we received with the accompanying photograph asserts that the two young

ladies pictured are the "world's most beautiful lift-truck operators." Ordinarily we take a dim view of such pragmatic pronouncements, but we're inclined to accept this particular bit of dogma on the grounds that in more than a decade of extensive field travel we haven't yet caught up with even one outstandingly cute lift-truck operator. Even from a detached view, which isn't altogether easy to maintain, it strikes us that the Buda nominees could give an excellent account of themselves in a considerably more crowded field of competition.

SEE IT
IN ACTION!



16MM Motion Picture in sound and color available upon request for Association and Engineering Meetings and for others interested in Rock Crushing Problems.

THE LATTURE CRUSHER

THE SCIENTIFIC WAY TO CRUSH ROCK

WALDRIP ENGINEERING CO.- WALDRIP SALES CO.

DOING BUSINESS AS WASCO

HOLLYDALE, CALIFORNIA

Drilling Blast Holes Safely With Churn Drills*

THE operation of churn drills involves many different types of hazards, arising from the equipment, the working area, and operating practices. These hazards may be eliminated or greatly reduced through the use of safety devices, proper maintenance and inspection of equipment, the use of personal protective equipment, good housekeeping in the working area, and training of operators and helpers in safe work practices.

Safety Devices Vibration in drilling causes overhead parts, such as sheaves and braces, to loosen and to fall and thus endanger workers below. The sand line sheave is most apt to fall from wear of the U-bolts and a safety chain is welded to the sheave and to the mast frame for the protection of the men below, as shown in Fig. 1. A canopy of steel plate over the driller shown in Fig. 2, serves a similar purpose.

The stem guide likewise is prevented from falling by a chain welded to the mast and to the stem guide. Another method is to weld four U-bolts on the stem guide and pass a ⅝-in. cable through the U-bolts and secure the other end to the mast.

Vibration also has caused the double lock nuts of the "K" frame to loosen. One company pins the cross arm if long enough or welds a forked piece to a brace for self support. Another company recommends castellated nuts and cotter keys on all bolts over ¾ in. when above the operator.

A serious hazard in working around heavy equipment is the danger of getting caught in gears and other moving parts while oiling, making adjustments, and performing other duties. One company has completely enclosed the moving parts area of a drill with heavy steel mesh. Entrance for greasing and other work is provided by a gate which is interlocked with the power switch so that, when the door is opened, the power is automatically cut off. Fig. 3 shows part of the enclosure and also the method of securing the bailer while moving the drill.

Safety cages and platforms at the upper part of the mast have been installed for greater safety in making repairs and performing other duties.

Climbing the mast to grease the sheaves is a frequent job exposing the helper to a fall. Lubrication is especially dangerous during bad weather and is sometimes neglected. Several companies run lines to the sheaves and grease them with a gun. One uses ⅜-in. Neoprene high-pressure air hose reinforced with wire allowing six in. of slack for the motion of the sheave. The sheave has been properly lubricated at temperatures of 25 degrees below zero. Detail Sheet 134 (available from the National Safety Council) shows a pressure greasing system for a well drill sheave block.

Fig. 1. A method of securing the sheave to the frame.

Bailing with a worn friction is dangerous. Drills may be operated with the sand line friction in bad condition due to the long shutdown required to make a replacement. One company has greatly reduced the time required to change a friction and has largely eliminated the hazard by cutting the discs, which are glued together, into halves and using three bolts extending through the friction flange to hold each half in position.

Another company has replaced the friction driven sand line reels with the new chain driven hammer reels and found them a big improvement for handling the bailer, drill bits, etc.

Personal Safety Equipment and Tools Personal protective equipment should be worn by drilling crews. Hard hats are essential especially where the men may be exposed to falling rock from high banks or faces. Tools, pipe, bits, and materials may be dropped in handling them and therefore, hard toed shoes or boots should be worn to protect the toes. The use of sledges, picks, and other shock tools positively require eye protection. In some instances, respirators may be necessary for protection against dust. Some mines use a compressed air jet and a trap to collect and discharge dust where it will not be a hazard.

Work on cables requires heavy

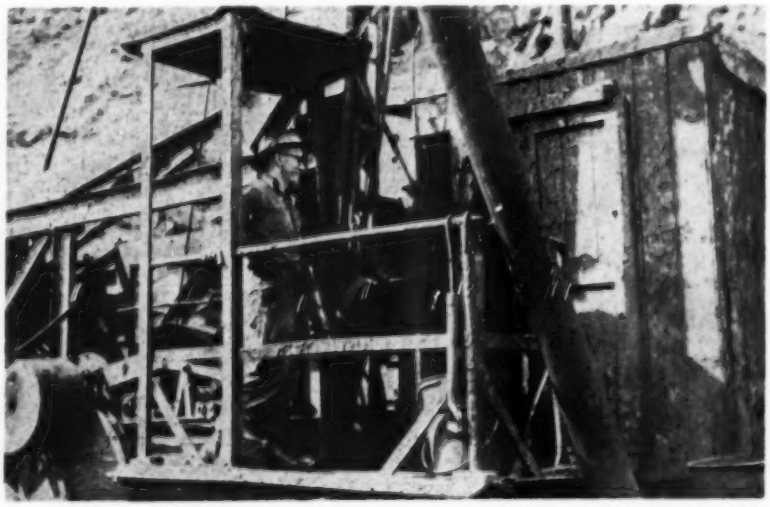


Fig. 2. The steel plate over the drill protects the operator from falling parts.

*Reprinted with permission of the National Safety Council (Data Sheet D-200). Material presented must not be confused with American standard safety codes; federal laws; insurance requirements; state laws, rules, and regulations; and municipal ordinances.

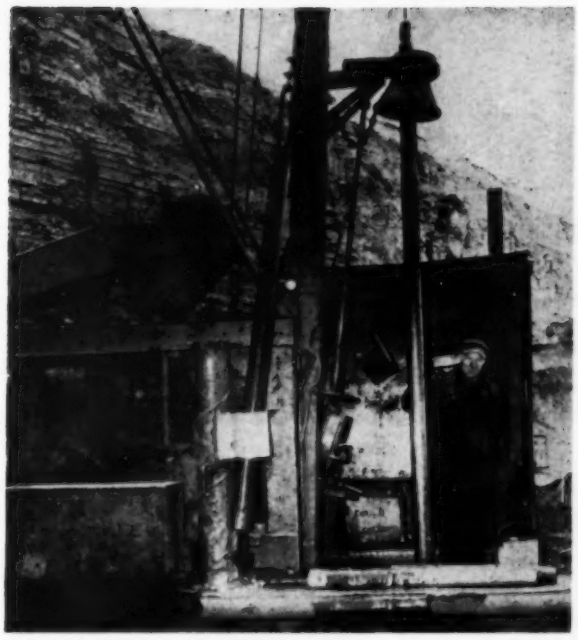


Fig. 3. Moving parts are enclosed. Entrance for greasing is by a gate interlocked with the power switch. Note the bailer holder.

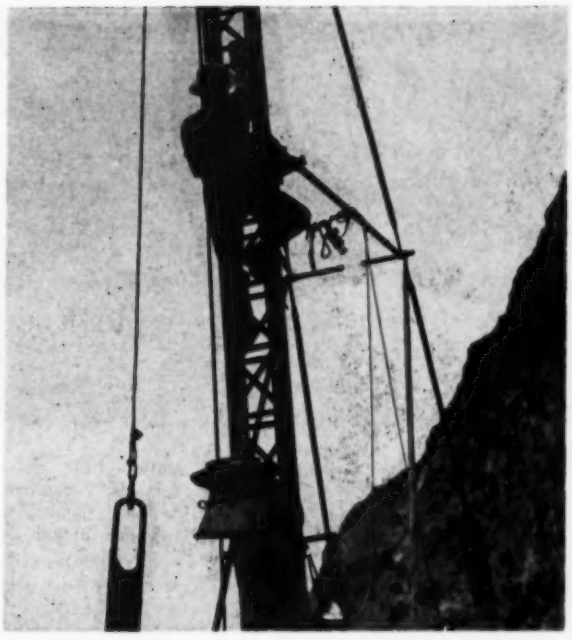


Fig. 4. This helper, wearing a safety belt, can climb and grease sheaves safely.

leather faced gloves for protection against broken wires. Some companies furnish Neoprene gloves for use in handling the bailer and require the helper to wear lineman's rubber gloves covered by leather ones, in handling the power cable.

Drill crews should be provided with salt tablets during hot weather and a suitable shelter and stove for winter. Portable drinking fountains are furnished by some companies.

A bailer hook is used to enable the helper to stand at a safe distance in guiding the bailer into the hole; it also may be used instead of the hands to guide the starter pipe or casing into the hole.

Power cable tongs must be used to safeguard the helper in handling a three conductor power cable against electric shock.

Each drill should be provided with a safety belt to be worn while on the mast and suitable hand holds and steps should be installed on the mast.

Inspection and Maintenance The drilling crew, mechanical and electrical departments should make regular inspections of the equipment. The importance of regular inspections is shown by an accident in lowering the mast. The investigation disclosed that the cause was a broken bearing on the derrick hoist shaft. The pressure of the boom on the defective bearing casting caused the entire mechanism to break apart, letting the mast drop. A check of five other drills revealed broken bearings on the derrick hoist shafts.

The constant jarring loosens braces, nuts, and suspended parts and they should be checked daily by the helper.

It is essential to change cables before they become excessively worn, break and result in a serious accident or delay. Wear occurs at the connection to the stem so that re-wrapping should be done at scheduled intervals. Cables for lowering the mast should be checked and clamps tightened, if necessary, before lowering the mast. The drill line, sand line, brakes, clutches and similar operating parts likewise require a daily inspection by the driller.

The electric department should check the grounding system and the cable for faults at least monthly and a weekly inspection and written report by the drill foreman, especially covering overhead parts, is required at some mines.

The repairs and adjustments which can be made by the driller and his helper should be stated specifically. At some properties, the electrical department makes all repairs to electrical parts with the exception of changing light bulbs and making cable connections. If drillers have been properly instructed, they may be permitted to take up the hoist drum brake, sandline brake shoe, and similar adjustments. No repairs or adjustments should be made by anyone without first opening the main switch and tagging it, or preferably locking it out.

Housekeeping Housekeeping on and around the drill is the responsibility of the driller. He should see that:

- Tools are kept in the tool box when not in use.
- Holes are kept covered.
- Bits, pipe, bars, etc., should be laid flat and not leaned upright against the drill and placed on timbers if the ground is wet.
- Platforms should be kept free of dirt and ice and snow.
- The power cable should be kept neatly coiled.
- A ditch that will carry sludge and water away from the working area should be dug if the natural drainage is insufficient.

Safe Operating Practices Moving the drill safely from one hole to another or to a new location requires close coordination between the driller and his helper. Since a move without having an accident partly depends on the way the helper discharges his duties, the driller should train him thoroughly in this part of the work.

All movable parts and equipment should be secured before the drill is moved. The usual practice is to put the bailer in the mud box and latch the sand reel lever and have no slack in the sand line, or to secure the bailer as shown in Fig. 3. The bottom of the tool is slightly below the deck and the tool guide is tightened.

If it is necessary to lower the mast, the mechanical department or foreman supervises the job.

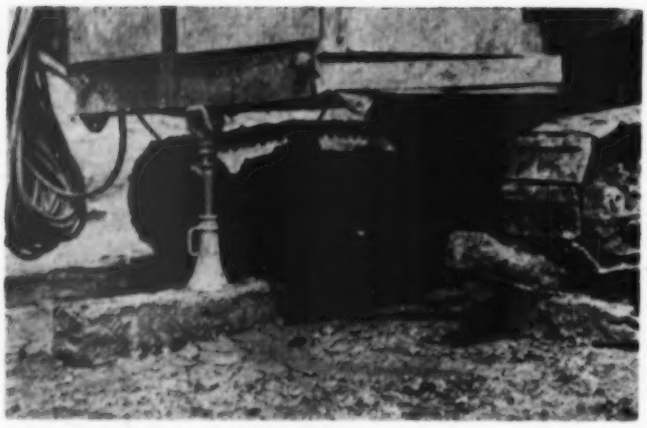


Fig. 5. Good blocking is essential to keep the machine from swaying on the jacks.

Fig. 6. Workers should be cautioned never to walk under the drill when it is in a raised position.

The route should be checked for special precautions that may be necessary in making the move. If high tension lines may be encountered, the foreman and the electrical department should decide on the safe procedure. Power lines should be de-energized if there is any likelihood that the mast or any part may come within 10 ft. of the lines. Railroad crossings and road intersections require a flagman. The maximum safe grade (generally 30 percent) should not be exceeded.

The driller often can assist the helper to safeguard the cable by traveling backwards (platform first). The helper is especially responsible for (a) seeing that the road is clear, (b) keeping the power cable in the clear and free of damage, (c) using tongs or rubber gloves as required in handling the cable, (d) signalling the driller. The helper should keep in sight of the driller as much as possible and not get on and off the drill while moving.

The location of a new hole may be dangerous due to proximity to the crest of the bank and to a hole that may contain explosives and to the possibility of the drill deflecting into such a hole. If for these, or other reasons, a location is considered hazardous, it should be inspected by the foreman before setting up.

The location of a hole may require the crew to work close to the crest and in this case, a safety belt and line are essential.

The practice at some mines is to set up as near to a right angle to the band as possible. If it is necessary to mount the drill on cribbing, it should be inspected by the foreman before the drill is moved onto the cribbing. All timber used for cribbing or blocking should be in good condition and firmly placed; otherwise, the machine will sway on the jacks. If the drill is lifted in jacking it, the frame may crack or spring.

Handling blocking and jacks may result in strains and sprains unless the drill crew is instructed in safe practices, such as getting sufficient help in handling heavy pipe and timbers, lifting with the legs instead of the back, making sure of good footing especially under bad weather conditions, taking a good grip, etc.

The following practices are important in drilling safely:

a. To stop the drill in an emergency, throw out the clutch or push the stop button and then open the main switch. It should never be opened under load.
b. A safety belt must be worn in performing any work on the mast.
c. Some companies use a bailer hook for guiding the starter casing into a hole to avoid injuries to the fingers and hands.
d. The motor must be stopped, the traveling clutches disengaged, and the brakes locked before ascending the mast.
e. Shut off the power and lock out the switch, and block the walking beam before working inside the frame.
f. Never pass under the drill or work under the walking beam in the raised position.
g. Though bailing is often done safely by one man, two men on this job is considered safer by some companies.
h. If it is necessary to straighten a crooked hole by blasting, it should be done only by a qualified blaster.
i. Blasting rules must be observed by the drill crew, especially taking shelter.

Bentonite Production in 1951 Highest in Industry's History

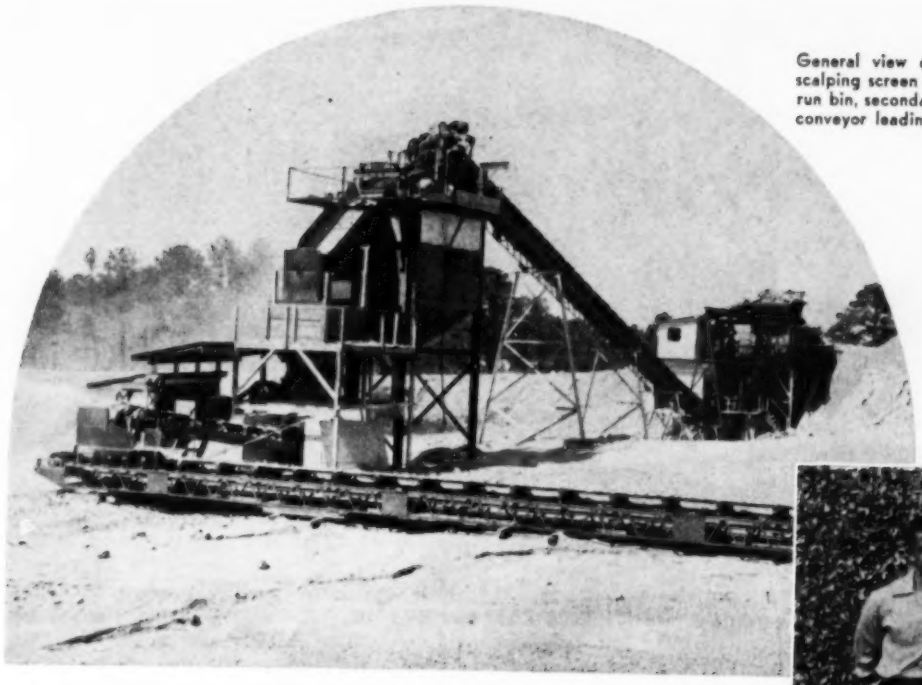
According to a Bureau of Mines report, domestic bentonite production broke all records in 1951. Output reached 1,218,868 short tons, valued at $13,006,645, representing a 25 percent tonnage and a 52 percent value increase over 1950. The increased activity in oil well drilling and the overall expansion in the foundry industry were responsible for this large bentonite output.

The foundry and petroleum industries consumed 94 percent of the total tonnage —rotary-drilling mud accounted for 38 percent (460,261 short tons); filtering and decolorizing oils, 33 percent (397,940 short tons); and foundry-sand bond, 23 percent (282,753 short tons). The remainder went into a wide variety of uses. Bentonite tonnage used for rotary-drilling mud increased 29 percent in 1951 over 1950, filtering and decolorizing oils tonnage increased 34 percent, and foundry-sand bond tonnage increased 12 percent.

The same nine states reported bentonite production in 1951 as in 1950. Increases in tonnage appeared in Arizona, California, Colorado, Mississippi, South Dakota, Texas, and Wyoming and decreases in Idaho and Utah.

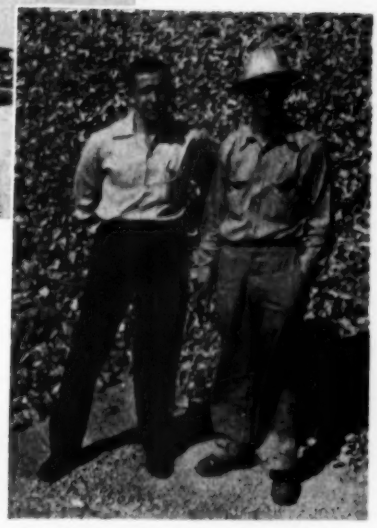
The Wyoming-South Dakota district accounted for 71 percent of the total bentonite production in 1951 (Wyoming 47 percent and South Dakota 24 percent), compared with 60 percent in 1950. Texas furnished 3 percent, the same as it has each year since 1948. The average value per ton increased to $10.67 per ton, compared with $8.79 per ton in 1950 and $8 per ton in 1949.

A new $5,000,000 plant, called Western Phosphates Inc., Garfield, Utah, will be completed in 1954 and will have an initial output estimated at 60,000 tons a year of treble superphosphate, ammonium phosphate, and liquid phosphoric acid, all in heavy demand in the West. The plant is owned jointly by American Smelting & Refining Company, Kennecott Copper Company, and Stauffer Chemical Co.



General view of primary crushing station, scalping screen mounted over 50-ton crusher run bin, secondary gyratory crusher, and belt conveyor leading to remainder of plant.

Georgia's NEW GRANITE QUARRY



Michael Bruni, secretary-treasurer, and J. T. Pettigrew, superintendent, Columbus Rock Company.

Columbus Rock Co.'s 100 t.p.h. plant features extensive use of belt conveyors and unique system of primary blasting.

By Kenneth A. Gutschick

In this quarry scene the 2-cu. yd. diesel shovel is loading a 20-ton diesel truck. Note the shallow quarry face and the wagon drills in the background.

another ON THE SPOT report

AN outstanding crushed stone plant of recent construction is that of the Columbus Rock Company, located on the extreme southern edge of the Piedmont physiographic province four miles north of Columbus, Ga. Like the majority of Georgia's crushed stone operations, Columbus Rock produces crushed granite, the deposit being part of the complex assortment of crystalline rocks typical of the Piedmont province, which lies east and south of the Appalachian mountains. The quarry, actually the southernmost granite quarry in southern United States, began operating last January, the actual construction starting in the early part of 1952. To date production has averaged about 100 t.p.h.,

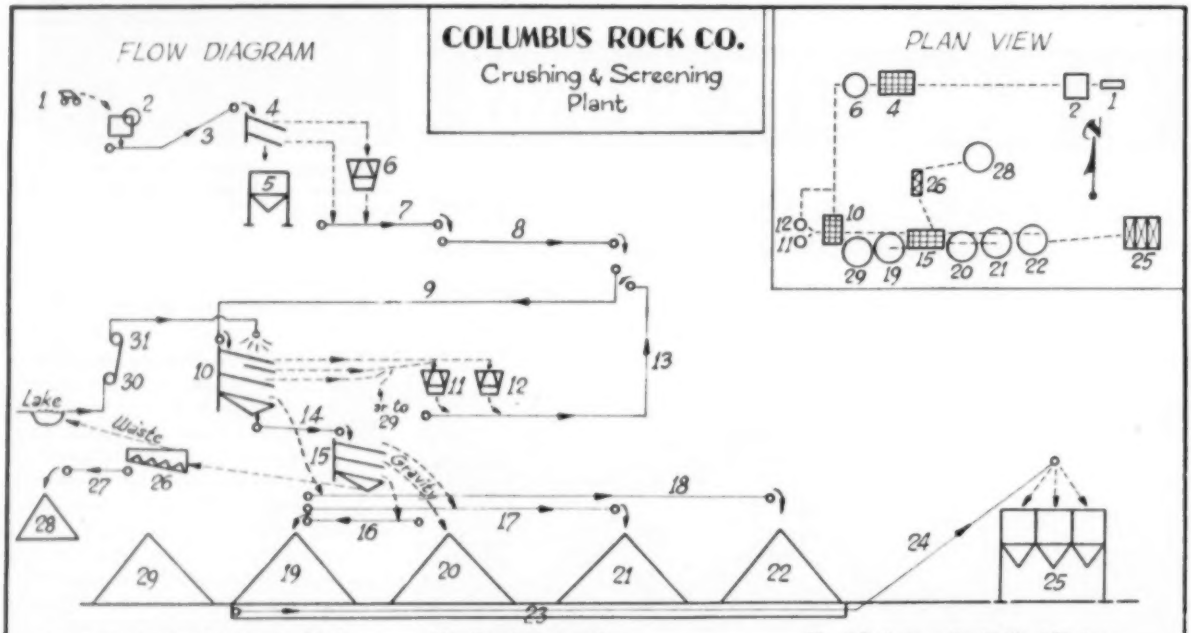
One of the two wagon drills used for drilling 2¼-in. primary blast holes. Drilling in the tough granite averages 30 f.p.m.

Quarry truck discharging a load into a hopper over the apron feeder, which in turn feeds the 30- by 42-in. primary jaw crusher.

although at peak periods it has reached 150 t.p.h.

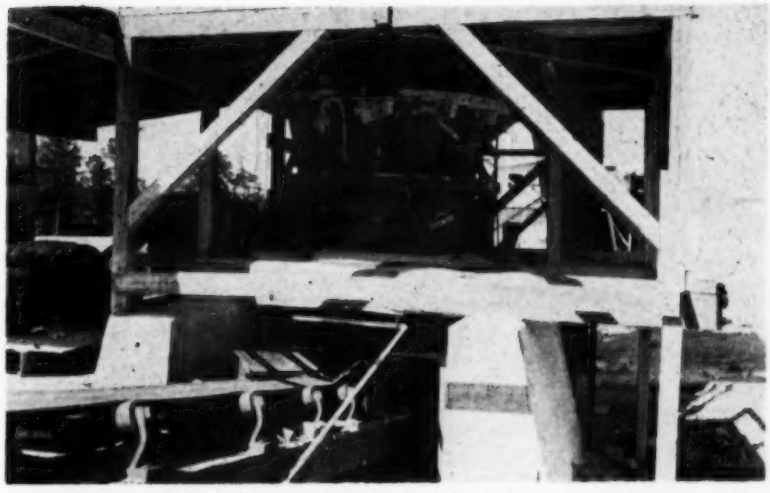
The plant, like many modern ones, is the open-air type spread out over several acres; it makes extensive and exclusive use of belt conveyors for transporting and elevating the crushed material to the various production units, for stockpiling, and also for reclaiming from stockpiles. In fact eleven belt conveyors in all are used, which exceed 1,500 feet in total length. The longest conveyor (355 ft.) is installed in a concrete tunnel beneath the stockpiles and is used both for blending and for transferring the materials to a truck loading-out hopper.

The plant is laid out in a roughly U-shaped pattern. It is extremely flexible and can produce a variety of stone sizes, ranging from 3 in. down to stone sand. All of the material except crusher run (minus ¾ in. to 0) is washed. Two of the plant's three multiple-deck screens are equipped with water sprays. The plant also includes a screw-type washer for producing concrete sand. Various blends of material under 1½



1. Apron feeder-42-in. by 14-ft.
2. Jaw crusher-30-in. by 42-in.
3. Conveyor belt-36-in. by 130-ft.
4. 2-deck screen-4- by 10-ft.
5. Crusher run bin-50 ton cap.
6. Gyratory crusher
7. Conveyor belt-24-in. by 30-ft.
8. Conveyor belt-24-in. by 120-ft.
9. Conveyor belt-30-in. by 139-ft.
10. 3 1/2-deck screen-4- by 10-ft.
11. Gyratory crusher
12. Gyratory crusher
13. Conveyor belt-24-in. by 88-ft.
14. Conveyor belt-24-in. by 52-ft.
15. 3-deck screen-4- by 12-ft.
16. Conveyor belt-20-in. by 65-ft.
17. Conveyor belt-20-in. by 165-ft.
18. Conveyor belt-20-in. by 265-ft.
19. 1/4-1/2in. stockpile-300 tons
20. 1/2-3/4in. stockpile-500 tons
21. 3/4-1 in. stockpile-450 tons
22. 1-1 1/2in. stockpile-400 tons
23. 250-ft. tunnel-(9 gates)
24. Conveyor belt-30-in. by 355-ft.
25. 3-compartment bin-300 ton cap.
26. Screw washer-29-in. by 25-ft.
27. Conveyor belt-20-in. by 102-ft.
28. Stone sand stockpile-500 tons
29. Coarse stone stockpile
30.&31. Centrifugal pumps (4&2 in.)

A view of the secondary gyratory crusher driven by a 75 hp. motor through V-belts.



in. in size can be produced by means of the reclaiming tunnel belt conveyor. A primary jaw crusher and three gyratory crushers for secondary and tertiary crushing round out the stone plant facilities. The entire plant is operated by electrical power.

Quarrying The quarry, located about ½ mile north of plant, is being developed on a gently rolling valley slope paralleling a wash. Overburden stripped from the slope averages 12 ft. in thickness and has been used in the construction of an earthen dam about a mile down the wash from the quarry, thereby forming a small fresh-water lake. Water from the artificial reservoir is pumped to the plant to be used for cooling the air compressors and for washing the crushed stone.

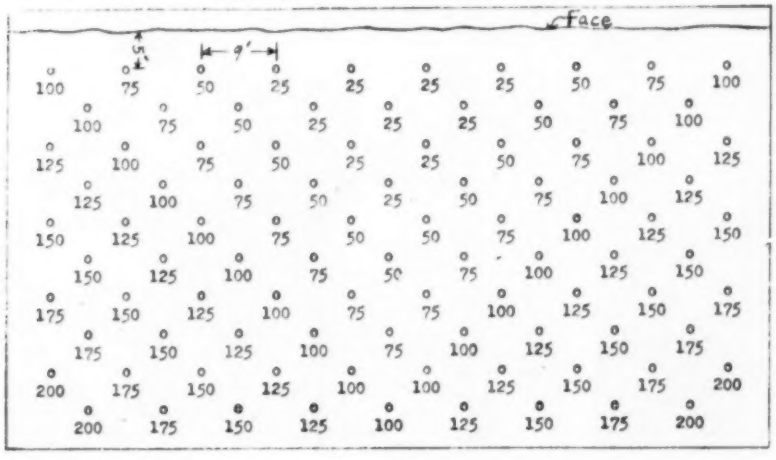
A unique system of primary blasting is used, which was developed by the plant superintendent, J. T. Pettigrew. The system features multiple row sequence-firing, and the use of two speeds of dynamite. The blast holes are drilled with two wagon drills, one a Chicago Pneumatic and the other a Thor; 1¼-in. drill steel equipped with 2¼-in. Carset bits is used. Air pressure for the drills is provided by a stationary Gardner-Denver single stage 450 c.f.m. compressor and a stationary Chicago Pneumatic single stage 320 c.f.m. compressor, both units mounted in a compressor house and hooked in series to the air line. The drilling rate averages 30 f.p.h. per drill, which is exceptionally high for the very tough granite. The Carset bits have proved to be especially advantageous for this type or work.

Presently a 16-ft. face is being worked. The holes are drilled 18 ft. in depth or two ft. below bottom; they are spaced on 9-ft. centers with 5-ft. burden. Ninety-five holes are drilled per shot. A staggered drilling pattern is used, consisting of an alternation of 9 and 10-hole rows across and 10 holes deep. Du Pont 1½ x 8 in. dynamite is used. Generally each hole is loaded with Gelex No. 1 60 percent at the bottom, followed by Red Cross 40 percent, and two feet of stemming at the top. The dynamite is detonated by means of Du Pont "MS" delay caps, one cap placed at the bottom of each hole. Generally eight different caps (MS-25, MS-50.... MS-200) are used per shot. One of the unique features of the system concerns the firing pattern, which allows for sequence firing between multiple rows. The pattern is shown in an accompanying diagram.

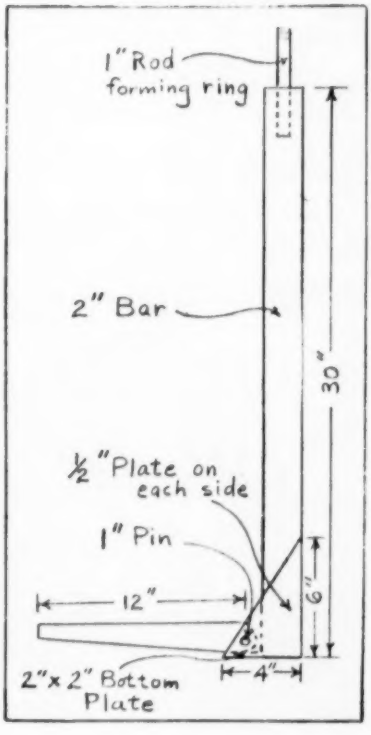
Note the pronounced V-pattern in the system. In each row paralleling the face, the caps are arranged in ascending order from the center out to the sides, and the caps are progressively higher in number towards the rear of the shot. Note also that no hole in any one sequence is relieved except by the preceding sequence.

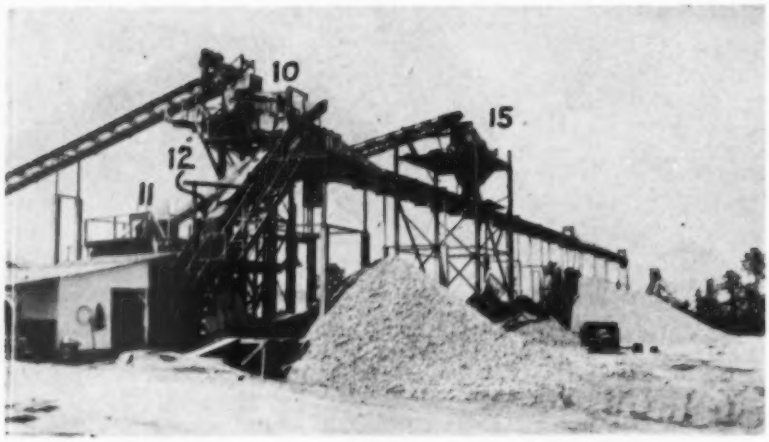
Through use of this method of multiple row sequence firing, the burden moves out from the central area first. Toe development tends to be eliminated through use of faster dynamite at the base and the use of an MS-25 cap as the initial delay rather than an instantaneous cap. This

Multiple row sequence firing pattern used at Columbus granite quarry. Numbers represent speed of the "MS" delay caps. Note the pronounced V pattern to the system.



Sketch of the specially-designed hook used to dislodge blocks from primary crusher. The principal feature of the device is the pivoted arm which makes it possible to be maneuvered through small openings.





General view of the final sizing facilities, showing the multiple-deck screens (10 and 15), the two tertiary gyratory crushers (11 and 12), and the stockpiling belt conveyors. (Numbers correspond to accompanying flow sheet.)

method has proved to be very effective; no holes are cut off due to rock movement, fragmentation is good, and the powder ratio of 2½ tons per lb. of dynamite is exceptionally high for such a low face. Approximately 4,500 tons are blasted with each 95-hole shot. Secondary drilling is handled with two Thor jackhammers.

Quarry loading is handled by a Lorain No. 82 diesel shovel, equipped with a 2-cu. yd. Amsco bucket. Two Euclid FD-36 20-ton end dump trucks haul the crushed stone to the stone plant.

Crushing and Screening The stone is dumped into a hopper over a 42-in. by 14-ft. Telsmith heavy duty apron feeder, which feeds the primary crusher —a 30-in. by 42-in. Gruendler overhead eccentric jaw crusher. The feeder is chain-driven by a 15 hp. General Electric motor through a gear reducer. The crusher, set at a 7¾-in. closed side discharge opening, is driven at 225 r.p.m. by a 100 hp. Westinghouse slip-ring motor through Texrope V-belts.

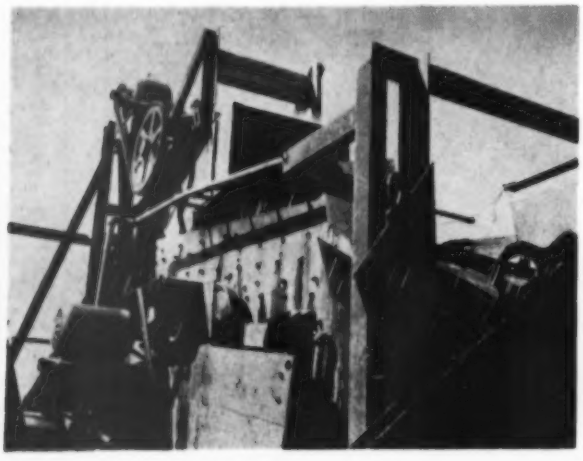
For dislodging large blocks caught in the crusher, a 2½-ton Coffing hoist mounted above the crusher is used in conjunction with a specially-designed hook. This hook has a pivoted arm which folds in towards the shaft when being lowered through the small openings and then folds out when beneath the hung-up block. By being pivoted, the arm can be maneuvered through very small openings. The hook was designed by the plant engineer, M. M. Schoolfield, and is shown in an accompanying diagram.

Stone from the jaw crusher is conveyed on a Lippmann 36-in. by 130-ft. belt conveyor mounted on a lattice framework to a Telsmith heavy duty double-deck 4- by 10-ft. scalping screen, which is installed over a 50-ton steel bin. The conveying unit, driven by a 20-hp. G. E. motor through a Falk reducer, utilizes 6-ply, 32-oz. rubber belting. The screen is equipped with perforated plate (3½-in. opening) on the top deck and ¾-in. woven wire cloth on the bottom deck. Plus 3½-in. stone is gravity chuted to the secondary crusher — a Telsmith gyratory breaker—and minus 3½-in. plus ¾-in. is discharged onto a Lippmann channel frame inclined 24-in. by 30-ft. belt conveyor, which also serves the secondary crusher. Material through the bottom deck cloth becomes "crusher run" and is stored in the 50-ton truck loading-out bin. Provision is also made for the minus ¾-in. material to by-pass the bin and be conveyed to the remainder of the plant, provided that the stone is exceptionally clean. By scalping off the fines at this stage, very clean stone is circuited to the remainder of the plant. The drive for the scalping screen is a 10 hp. electric motor while the gyratory crusher is driven by a 75 hp. motor through V-belts.

The combined discharge of the scalper and the gyratory crusher is then cross-conveyed by means of two belt conveyors to the finish screening department. The first conveying unit is a Lippmann 24-in. by 120-ft. horizontal belt conveyor mounted at ground level, followed by a Continental Gin inclined 30-in. by 139-ft. belt conveyor which elevates the material to a multiple deck vibrating screen. To reduce the wear at the junction of the two conveyors as well as at other transfer points in the plant, collecting boxes have been in-

Close-up of the 3½-deck 4- by 10-ft. screen, which produces 1-1½-in. stone and scalps off plus 1½-in. stone for recrushing. Minus 1-in. material is conveyed to a second screen for further sizing. Unit is equipped with water sprays.

Stone sizes under 1 in. are produced on this triple-deck 4- by 12-ft. screen and stockpiled by means of the belt conveyors. Photo was taken before this screen was placed in operation; the three conveyors are thus serving the 3½-deck screen to the rear, (but not in view).



stalled, thereby allowing stone to fall on stone rather than on the rubber belting.

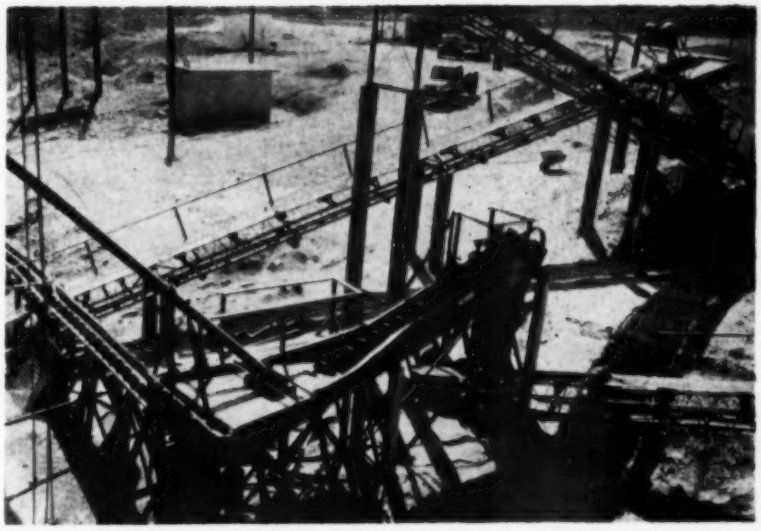
The finish screening department consists of two multiple-deck vibrating screens, the first of which is operated in closed circuit with two fine-reduction gyratory crushers. Both screens are equipped with water sprays, so that all stone sizes are washed. The material is first sized on a Screen Equipment Company Type M 3½-deck 4- by 10-ft. vibrating screen, which is equipped with the following size openings of wire cloth; top deck—one section of 2½-in. (or 2-in.) and one of 3½-in.; half deck—2½-in. (or 2 in.); middle deck—two sections of 1½-in.; and bottom deck—two sections of 1-in.

Material retained on the top deck is recircuited through either or both of the tertiary crushers. Material retained on both the half and the middle deck can also be chuted to the crushers or else discharged by gravity to stockpiles. Minus 1½-in. plus 1-in. stone is conveyed via a long belt conveyor to a stockpile. Minus 1-in. stone is transferred to the second screen for finer sizing via a Barber Greene 24-in. by 52-ft. inclined belt conveyor.

The tertiary crushers are identical Traylor Type TY 28-in. gyratory units, both of which are direct-connected to 75 hp. motors (one a Westinghouse and the other a Wilson) through Goodyear compass-chord non-stretchable flat belt. The crushers are set at ⅞ in. and ¾ in. openings respectively. Discharge from each crusher is returned to the Seco screen via a Continental Gin 24-in. by 88-ft. inclined belt conveyor and the main 30-in. conveyor belt mentioned earlier, thus completing the circuit.

The second finishing screen is a Telsmith triple deck 4- by 12-ft. unit, equipped with ¾-in. woven wire cloth on the top deck, ½-in. (or ⅜-in.) on the middle deck, and No. 4 mesh (or No. 8 mesh) on the bottom deck. Fractions retained on each deck are then conveyed to stockpiles via either horizontal conveyor belts or by gravity. (See accompanying flowsheet). Material passing the bottom deck is piped to the unit producing concrete sand.

Three horizontal Continental Gin 20-in. wide belt conveyors, mounted adjacent to each other and about 40 ft. above ground level, serve the two screens. The conveyors are supported by combination concrete-steel pillars; guy wires are used to maintain stability. The longest conveyor (265 ft.) conveys 1-1½ in. stone from the Seco screen to storage. The 165-ft. long unit handles ¾-1 in. stone from the Telsmith screen, and the 65-ft. long unit handles ¼-½ in. stone also from the Telsmith screen. When the plant was originally set up, only the Seco screen was installed; and these three conveyors served this screen. Since both production and flexibility were necessarily limited, the second sizing unit was added recently. In order to make use of the three stockpiling conveyors, the screen was mounted above the three conveyors. The only changes required was the reversing of the direction of flow of the shortest belt.



Concrete sand is produced from minus 4 mesh material on this 29-in. by 25-ft. screw-type washer and conveyed to stockpile. Overflow is flumed to the company's artificial lake.

Water for washing purposes is obtained from the company's artificial lake. It is pumped at 600 g.p.m. through approximately 3,000 ft. of 6-in. steel pipe by a Gardner-Denver 4 in. centrifugal pump located at the pond and by a 2-in. booster pump located at the plant. Although both screens are equipped with water sprays, the screen handling the coarser stone (Seco) uses only small quantities of water, in fact, only enough to lubricate the chutes issuing from the screen in order to reduce wear.

Concrete sand is produced from minus 4-mesh material piped from the Telsmith screen by an Eagle Iron Works 29-in. by 25-ft. longwier screw-type washer, which has 24-in. diameter flights. The unit is driven at 24 r.p.m. by a 10 hp. motor through Texrope V-belts. The finished product averages 89, 68, 47, 26, and 9 percent passing 8, 16, 30, 50, and 100 mesh sieves respectively, and thereby meets Georgia State High-

View of the stockpiling facilities, the tunnel belt conveyor, and the 300-ton three compartment bin. Various blends of stone are produced by the reclaiming tunnel belt conveyor.

way Department specifications for concrete sand. It is transferred from the discharge end of the screw washer to stockpile via a 20-in. by 102-ft. Continental Gin inclined belt conveyor. Waste from the washer returns to the artificial lake via flumes and natural drainage.

One of the main features of the Columbus operation is the reclaiming belt conveyor tunnel located beneath the 1½-in., 1-in., ¾-in., and ½-in. stockpiles. The tunnel, which is of reinforced concrete construction, is 250 ft. long and equipped with nine gates. Crushed stone is reclaimed from storage via a Continental Gin 30-in. by 355-ft. belt conveyor, the last 100 ft. of which is inclined in order to elevate and feed the material to a Heltzel three-compartment 300-ton truck loading steel bin. This long conveyor unit is equipped with a gravity belt tightener.

By being able to reclaim either of these basic sizes or any combination of them through use of the various gates, Columbus Rock can provide a variety of stone sizes to meet any customer's demand. Additional stockpiles are also maintained by the firm. A 15-ton Euclid truck is used for building up these piles. Delivery trucks are loaded from stockpile by a gasoline-powered Hough Model HM Payloader, mounting a 1½-cu. yd. bucket.

Before concluding it will suffice to point out certain details of the conveying system used at the Columbus plant and also other facts of interest. It is to be noted that 20, 24, 30, and 36 in. wide rubber belting is used, the exact width depending primarily on the load carried. The stockpiling belts are the narrowest and the belt leading from the primary crusher the widest. The belts are driven by electric motors ranging in size from 5 hp. to 25 hp. and through Dodge torque-arm, Falk, and Foote speed reducers. The largest motor is used to drive the long tunnel-belt conveyor. The Foote reducers are used in conjunction with the Continental Gin conveyors. The belt speeds vary from 250 to 300 f.p.m.

Trucks are also loaded from stockpile by this 1½-cu. yd. front end loader.

Four, five, and six ply 32 oz. New York Rubber Co. and U. S. Rubber Co. rubber conveyor belting is used. The heaviest belt, namely 6 ply with ¼-in. top and 1/16-in. bottom, is used on the conveyor issuing from the primary crusher and also the one feeding the Seco screen. Four ply with ⅛-in. top and 1/16-in. bottom is used on the stockpiling conveyors. The two conveyors immediately following the secondary crusher utilize 5 ply belting with ⅛-in. top and 1/16-in. bottom.

Due to the very resistant, abrasive characteristic of granite, Columbus Rock is using various methods to reduce wear. All chutes are bottom-lined with ⅜-in. Goodrich Armorite rubber lining having fiber backing. Special manganese wire cloth and perforated plate, supplied by Manganese Steel Forge Co., is used on the scalping screen and the 3½-deck screen. Finer sizing wire cloth is supplied by the Ludlow-Saylor Wire Co. and the National Wire Cloth Co. In addition, the firm plans to build up crushing parts of the jaw and gyratory crushers with manganese bars.

Nearly all crushed stone deliveries are handled by a local trucking firm. Truck deliveries are generally within a 50-mi. radius of the quarry. A Howe 50-ton capacity platform scale is used for truck weighing. The firm also ships material by rail, utilizing a Central of Georgia R.R. siding four miles from the quarry. Railroad cars are loaded by means of two portable Barber Greene loaders. The stone is sold for a variety of purposes including concrete aggregate (both coarse and fine), road material, bituminous concrete, and sewage filter beds. In addition the concrete sand is used in the local concrete block industry.

Officers of Columbus Rock Company are as follows: president, Charles F. Williams; vice-presidents, Paxton Moss and Edward Gates; and secretary-treasurer, Michael Bruni. M. M. Schoolfield is the engineer. The superintendent, J. T. Pettigrew, is the son of R. W. Pettigrew, Nashville, Tenn., a retired pioneer of the crushed stone industry in Tennessee, who formerly worked with Franklin Limestone Company.

Industrial Film Casts New Light on Blasting

A new 15-minute, 16-mm. sound film, involving unusual photographic techniques, shows how modern methods make blasting, once an instantaneous operation, an orderly and controlled sequence of events almost precisely adaptable to the type of rock, the surroundings, and the specific result desired.

This technical film, titled "The Inside Story," is available for showing before mining, quarrying, and construction engineers at company meetings or in professional society sessions. Where more complete discussions are desired, it may be supplemented with slide films to show special types and methods of blasting in sequence pictures. Some of the most revealing portions of the film itself owe their clarity to the use of a "machine-gun" sequence camera.

Produced by the Atlas Powder Company, the film explains the principles of blast detonation, discussing not only the practice of millisecond delay blasting but also the new refinement of that technique known as alternate velocity loading. Prints are available from various Atlas offices.

Livingston Rock & Gravel Buys City Rock Company

The Livingston Rock & Gravel Company of Long Beach, Calif., has acquired the City Rock Company's sand-and-gravel plant and property at Sunland, Calif., according to Carder B. Livingston, president.

Acquisition of the Sunland facilities from the P. J. Akmadzich interests includes, besides the 350-t.p.h. aggregates plant, a modern ready-mix plant serving the Sunland area.

The Livingston firm has other rock, sand, and gravel plants at Azusa and Palos Verdes, and ready-mix plants at Montebello and Artesia, all situated within Los Angeles County.

Howard Morris will direct production for all plants from the Livingston headquarters in Long Beach, where a new $30,000 office building is currently being erected. No personnel changes are contemplated for the present.

Report on Current Labor Developments

Eisenhower Labor Law Change Proposals

By S. Herbert Unterberger
Industrial & Labor Economists
Washington, D. C. — Philadelphia, Pa.

Among the worst kept secrets in Washington were the proposals to Congress for changes in the Taft-Hartley Law which were being prepared for the President. There is good reason to believe that the document which became public had never been seen by the President and hence did not represent his final thinking. Nevertheless, it is important because it does represent the thinking of persons high up in the administration of the legislative draftsmen in the White House.

The most striking aspect of the proposals is the special benefits which they confer on the unions in the construction industry. Although these have been called a pay-off to the A. F. of L. for cooperating with the administration and have been attributed primarily to the influence of Secretary of Labor Martin Durkin, former president of the Plumbers Union, no such sinister motivation is required to explain this action which has its own logic. The plain fact is that the requirements of the Taft-Hartley Act are unworkable in the building trades where, to quote the unofficial statement, "employment is primarily casual, temporary or intermittent or where it is impracticable to hold an election in accordance with the Act. In these industries the tenure of employment of any particular group of employees is usually not sufficiently long to permit the holding of an election for the purpose of determining the employees' representatives for collective bargaining. Similarly, if a 'union shop' contract is in effect, the employee's job frequently comes to an end before the expiration of the 30-day period within which he must join the union under the contract. Hence, in these industries the rights of individual workingmen and women to bargain collectively through representatives of their own choosing do not receive adequate protection." As a result the Taft-Hartley Act was never really enforced in the building trades where so-called illegal agreements or practices are commonplace because compliance is virtually impossible.

The suggested amendments are an attempt to provide a law which suits the situation even if that appears to provide the building trades with concessions not granted most other lines of business. Most of these proposed changes had the endorsement of the late Senator Robert A. Taft, who, without doubt, had the most intimate knowledge of this law and its operations of any member of the Senate, including the so-called labor experts.

Among the amendments specifically suggested for the building trades were the following:

1. Construction firms and building trades unions would be permitted to sign contracts before hiring is begun on a project.
2. These contracts could contain a "union shop" provision whereby the workers hired would be required to join the union within seven days after beginning work.
3. A union which has a labor dispute with one contractor on a construction job could legally boycott another contractor on the same project.

The first two of these proposed amendments would also apply to the amusement and maritime industries where much of the employment is also casual, temporary, or intermittent.

A further proposed amendment, which would also strengthen the position of the unions in the building trades as well as craft unions in other industries such as printing, would permit an employer and a union to enter into an agreement specifying the minimum training and experience qualifications that will be required for employment. If it so happened that the training and experience qualifications were written so that only union members could meet them, this would be tantamount to a closed shop.

The other principal amendments suggested were:

1. That jurisdiction over small employers be specifically remanded to the states.
2. That minor supervisors, such as working foremen and leadmen, whose only supervising duties consist of giving directions to employees or assigning work to them, be included in the coverage of the Act.
3. That unions shall not be responsible for the acts of individual members solely by reason of their membership.
4. That under "union shop" contracts, a union may also expel a member for disclosure of confidential information or reasonable cause to believe the member belongs to, or is in sympathetic association with, the Communist Party.
5. That the employer shall clearly have the right to notify the union of job openings and give the union a reasonable opportunity to refer applicants. This would legalize union hiring halls.
6. That the notice period of intention to modify or terminate an agreement be reduced from 60 to 30 days.
7. That representation elections be prohibited for a period of four months after the commencement of a strike. This would prevent temporary strike replacements from voting to replace the recognized collective bargaining agent.
8. That de-authorization of a union shop shall not be permitted during a contract period.
9. That during the term of a union contract, neither party be required to negotiate as to any subject not covered by the agreement unless the contract so authorizes or the parties consent.
10. That union leaders shall no longer be required to file non-Communist affidavits.
11. That the request for an injunction in a secondary boycott case be discretionary, rather than mandatory.
12. That the Federal laws prevail over state laws with regard to employers and unions covered by the Federal law. This would have the effect of exempting interstate businesses from state anti-union shop laws.
13. That employers be permitted to waive their rights to participation in the administration of welfare funds.

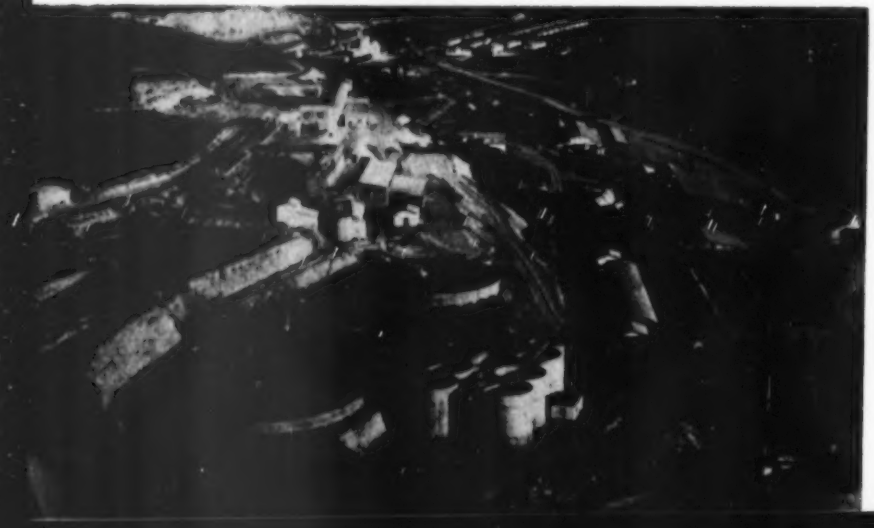
It is clear that rather than further restricting labor unions, these proposed changes would eliminate many of the present restrictions. To be sure, these suggestions are unofficial. But they do reveal the direction of much of the thinking of the Administration. It is far from the widely predicted "crack-down" in organized labor.

According to the Warner Company's semi-annual report, gross sales of the firm increased during the January-June period from $9,719,102 last year to $9,937,786 this year. This resulted in a final net income during the six-month period (1953) of $1,063,083, as compared with $1,037,747 in the comparable period last year.

The 1,000,000-bbl. per year wet process plant of Cia. Argentina de Cemento Portland at Parana, Argentina. Flotation methods are used in the preparation of the raw materials.

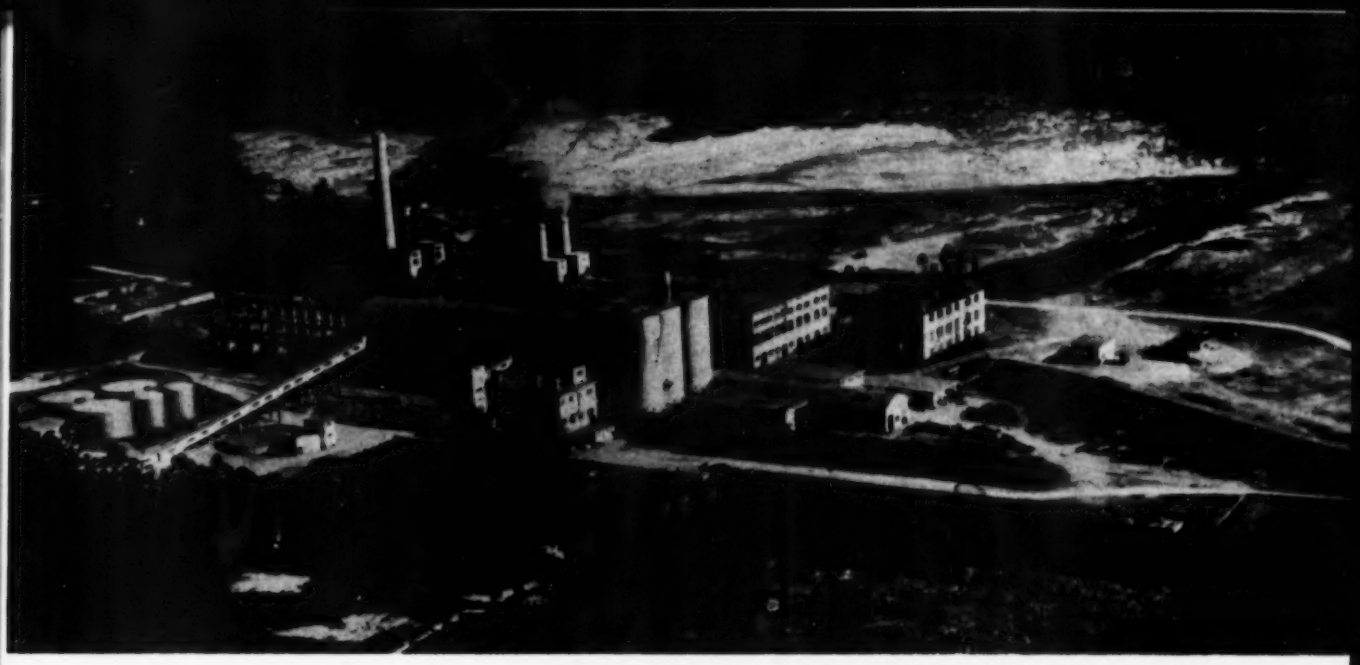
A Review of the Cement Industry in Latin America

Rapid industrialization and rising standard of living responsible for widespread expansion of cement production facilities



One of the many plants built in recent years is that of Cemento Cerro Blanco de Polpaico, S. A. near Santiago, Chile. It has a capacity of 240,000 long tons annually.

THE industrialization of Latin America, which started before World War II and then picked up speed rapidly after the War, is now progressing at a terrific pace. According to authoritative sources, Latin America's manufacturing production index is now 175 on a scale which uses the pre-war status as 100. These figures compare with 192 for the United States, 190 for Canada and 136 for Europe. Several individual Latin-American countries, however, far exceed the above figures—the index stands at about 250 for Brazil, Colombia and the Dominican Republic, and almost 200 for Mexico, Argentina and Chile. This industrialization is accompanied by a rise



Top: One of the largest plants in Latin America is operated by Cia. Nacional de Cemento Portland at Guaxindiba, Brazil. This four-kiln operation can produce 2,700,000 bbl. annually.

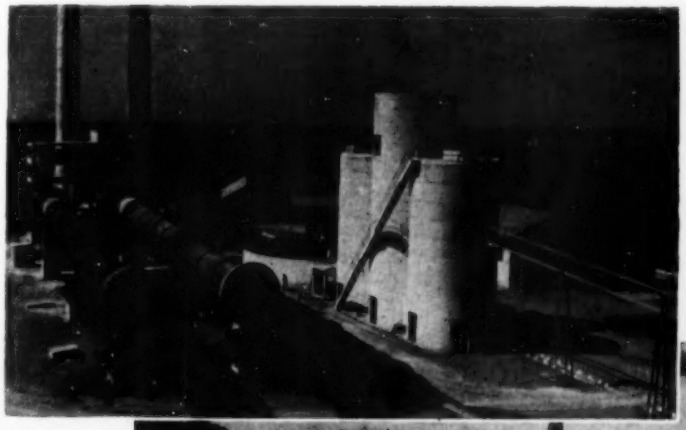
Center: The 550-ton per day plant of C. A. Venezolana de Cementos at Maracaibo, Venezuela. Built in 1947 with one kiln, its capacity has since been doubled.

Bottom: The plant of Cementos del Valle, S. A., near Cali, Colombia, was built in 1941. In 1949 it was enlarged, and further expansion, which includes the installation of a new kiln, is under way.

in the standard of living and in all types of construction.

A result of this rapid industrial growth has been a widespread expansion of the cement industry to meet the soaring demands. Since the war dozens of new plants have been built, many more are now under construction or planned, and there have been and are many expansions of existing operations. The greatest activity has been in Brazil where production has been more than doubled since 1947 and will again be doubled by 1955. As a result of all this expansion of cement production nearly every Latin American country is now, or soon will be, self sufficient. Until recent years nearly all of these countries were large importers of cement.

In this review we attempt to give a general picture of what is going on in the cement industries of these Latin American countries, (except Mexico) and what the future holds for them. This is the last of a series of such reviews in PIT AND QUARRY, which have now covered the world. The first, based on a personal visit of a member of the staff to nearly every plant in Mexico, was published in the July and August, 1945 issues of PIT AND QUARRY. This exhaustive article was prompted by the fact that Mexico, during the war years, had more than doubled its cement producing capacity. The next articles, published in July and August, 1950, covered the cement industry in Europe after it had partially overcome the effects of the war. Africa was covered in the October, 1950 issue, Japan in February



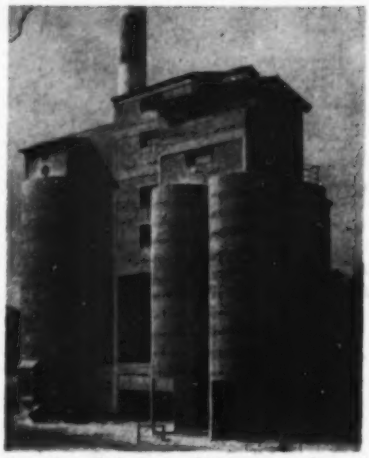
and July, 1951, and Asia, Australia, etc. in September, 1951. Conditions and developments in the United States and Canada are, of course, reviewed each year in the January Annual Review and Forecast Number of PIT AND QUARRY.

SOUTH AMERICA

Argentina

The demand for cement in Argentina has been nearly static for many years and as a result the capacity of the industry has changed very little in 10 years or more. Since the war, however, demand has gradually been using a higher percentage of that capacity with the result that there has been some expansion of productive facilities in recent years. More expansion is planned. In the years from 1940 through 1950 the capacity of the industry was about 2,020,950 metric tons annually. Eleven producing companies operated from 1939 to 1950. A twelfth plant went into operation in 1951, and capacity at the end of 1952 was 2,140,950 tons. Production of cement was 1,135,312 tons in 1939 and stayed fairly steady through 1946. A gradual increase began in 1947, reaching a new record of 1,557,911 tons in 1950. There was a slight drop in 1951 to 1,542,525 tons, this being supplemented by imports of 429,089 tons. In 1952 production was 1,539,487 tons, and imports of 483,468 tons were at an all-time high.

The latest Argentine official information shows that there are now 12 portland cement plants in operation in that country, this list apparently not including the one plant which makes white cement exclusively. An official release, however, lists a thirteenth plant—no name given—at Puebla Santa Juana, G. M. de Commodore Rivedavia. This apparently did not produce in 1951 but was listed as producing 7,025 tons of standard portland cement in 1952. It is listed as a wet process plant with two rotary kilns—one 3.04- by 100-meters and the other 2.60- by 100-meters. It has an annual capacity of 120,000 tons.



Raw silos of the new white cement plant of Iggam S. A. Industrial near Cordoba, Argentina.

Loma Negra Loma Negra S. A., Compania Industrial Argentina, is probably the largest producer of portland cement in Argentina and also operates one of the largest plants in Latin America. The larger of its two plants is at Olavarria, province of Buenos Aires. The other plant is in Frias, province of Santiago del Estero, and is known as Cia. Industrial Nortena. Both produce only standard portland cement. Each also has a hydraulic lime plant in connection.

The Olavarria plant has an annual capacity of 450,000 metric tons and in 1952 produced 2,040,000 bbl. of standard portland cement. It is now being expanded by the addition of a Lellep-Allis Chalmers kiln which will be in operation late in 1953. This is said to be the first kiln of this type in a wet process plant and is expected to increase capacity about 120,000 tons annually.

Crushed limestone is hauled from the 36-in. Traylor crusher at the quarry by trucks. In the plant there are four Polysius raw mills. Of the four existing oil-burning kilns, three are Polysius (3.0- by 69.0-meters), and one is Krupp (3.6- by 68.0-meters). Three of the air-quenching clinker coolers are Lee, and one is Allis-Chalmers. There are five clinker mills—three Polysius, one F. L. Smidth Unidan, and an Edgar Allen. There is a diesel power plant with a capacity of 10,000 kwh. in five main units. Recovered heat through boilers makes another 2,500 kwh. in steam turbines.

The Frias plant has an annual capacity of 120,000 tons and in 1952 produced 576,000 bbl. of standard portland cement. It has one 3.6- by 116-meter F.L. Smidth kiln, uses the wet process, burns fuel oil, has a Unax cooler and an Allis-Chalmers clinker crusher. The raw mill is a Smidth Unidan, and the clinker mill is a Polysius. Power is provided by a 2,500 kwh. diesel plant. The lime-

The Sierras Bayas plant of Cia. Argentina de Cemento Portland, which has an annual capacity of 2,300,000 bbl.

The 7½- by 220-ft. kiln at the plant of Iggam S. A.

stone is hauled 20 mi. by rail from the quarry.

Cia. Argentina Another large producer in Argentina is Compania Argentina de Cemento Portland, a subsidiary of the Lone Star Cement Corporation. It has two plants, the newest but smallest one being a 1,000,000-bbl. wet process plant at Parana, province of Entre Rios. The older and larger plant is a dry process operation at Sierros Bayas, Province of Buenos Aires, which went into operation in 1919. It has a capacity of 2,300,000-bbl. annually from five 10- by 175-ft. kilns. Both plants make standard and high-early strength portland cements.

In spite of the fact that the Parana plant was built in 1938, it is still one of the most modern operations in Latin America. At that time, according to a complete description in the November, 1938 issue of Prr AND QUARRY, it had an annual capacity of 800,000 bbl. It was the first plant to be designed from quarry to packhouse to take advantage of the Breerwood (Separation Process Company) system of flotation in the preparation of the raw material. It was also one of the first plants to be constructed almost entirely of reinforced concrete.

Calera Avellanada The original lime plant of Calera Avellanada S. A., at Olavarria, Province of Buenos Aires, Argentina, was built in 1919. This was later moved to San Jacinto and became one of the largest lime operations in South America. In 1933 plans were laid for a cement plant to be built at San Jacinto. This 250-ton per day (80,000 tons per year) dry process plant was built in 1937. It has one 3- by 30-meter rotary kiln and produces only standard portland cement. Plans are now underway for the expansion of this plant by 120,000 tons annually. The equipment to be installed includes a Polysius rotary kiln and an Allis-Chamers Fairmont crusher.

Cementera Argentina Another large producing company in Argentina is Corporacion Cementera Argentina, S. A., which operates three plants of moderate size. The Cordoba plant at Estacion Kilimetro 7, Province of Cordoba, is a 225-ton per day dry-process operation with one 2.1- by 61.0-meter kiln. The Mendoza plant at Capdevila, Province of Mendoza, is a 300-ton dry operation using Smidth equipment, including a 2.1- by 2.6- by 69.0 meter kiln. The largest plant, a 430-ton wet process operation is at Pipinas, Province of Buenos Aires. It has a 3.6- by 3.4- by 106.0-meter kiln. These plants have a combined capacity of 350,000 tons annually of standard portland and pozzuolan cements. The pozzuolan cement is made at Pipinas and Capdevila.

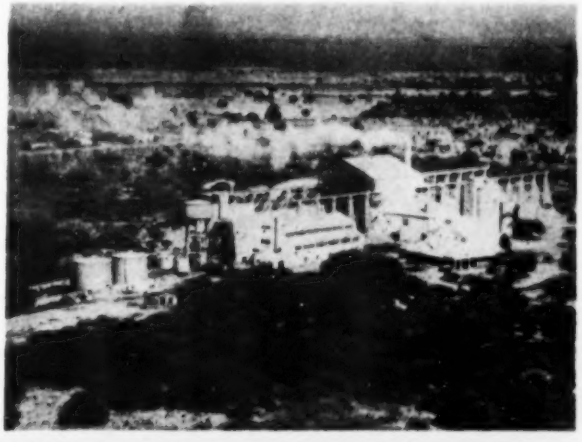
Iggam One of the few white portland cement plants in Latin America is operated by Iggam S. A. Industrial at Rodriguez del Busto, 5 miles from the provincial capital of Cordoba. It is a 100-ton per day F. L. Smidth plant which went into operation late in 1950.

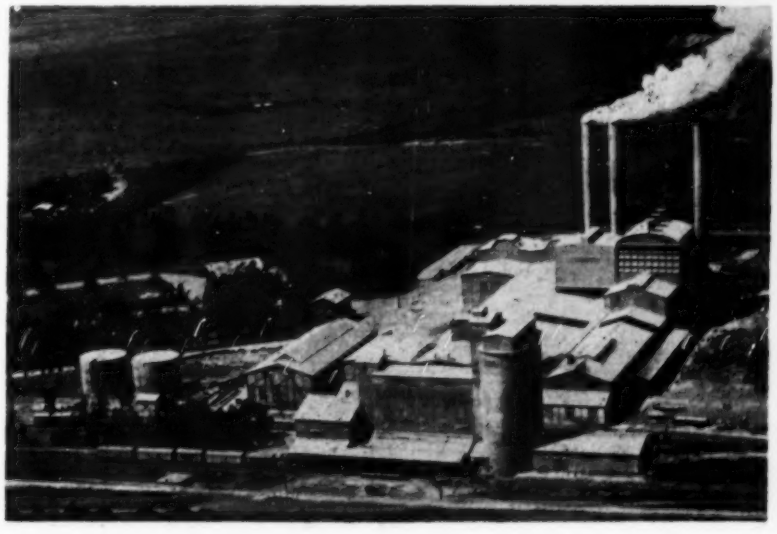
As in most white cement plants, extreme care is exercised in the selection of raw materials. The use of a white clay hauled more than 200 miles to the plant, and limestone from 180 miles away makes bleaching unnecessary.

Primary crushing is done by a hammermill and raw grinding by a 7- by 30-ft. 3-compartment Unidan mill. The 7½- by 220-ft. kiln has special cross-shaped deflectors for its first 40 feet for high thermal efficiency. Other equipment includes a Folax grate cooler and a 2-compartment Unidan clinker mill in which granite and silica balls are used.

The original plant on this site was built in 1906, with one of the first rotary kilns ever installed to produce standard grey portland cement. After several changes in ownership this plant in 1940 began to produce white portland cement but was shut down soon afterward.

The present Iggam firm was really started as an industrial enterprise in 1932 when the Bardin brothers bought a ranch 300 miles north of Buenos Aires and began to produce gypsum plaster at a small plant on this property. Later they built a plant in Buenos Aires for the production of ready-made stucco, using imported white cement. In order to insure an adequate supply the Cordoba plant was acquired and enlarged but demand soon exceeded its ca-





The two plants of Loma Negra S. A., one of the largest cement producers in Argentina. The Frias plant (right), known as Cia. Industrial Nortena, has a capacity of 120,000 metric tons annually. The Olavarria plant (below) has a capacity of 450,000 tons. Both plants produce standard portland cement and also hydraulic lime.

pacity. As a result the new plant was built. Iggam now operates a second stucco plant adjoining the cement plant and also operates a large nonmetallic minerals grinding plant in Buenos Aires.

Juan Minetti Another large producer is Cia. Sudamericana de Cemento Portland, Juan Minetti e Hijos, Ltda., with plants at Dumesnil, Province of Cordoba, at Pauqueua, Province of Mendoza, and at Campo Santo. The plant at Dumesnil is a wet process operation with a 3.0- by 3.6- by 2.7- by 68.0-meter kiln and a capacity of 219,000 tons of standard portland cement annually. The Pauqueua plant uses the dry process and has three kilns—of 2.26- by 24.0-, 2.66- by 30.0-, and 2.59 by 3.05- by 79.23-meters. It has a capacity of 182,500 tons annually and produces both standard portland and white cements. The Campo Santo plant is dry process, wtih a 2.6- by 3.05- by 79.23-ft. meter kiln, and has a capacity of 91,250 tons of standard portland cement annually.

Bolivia

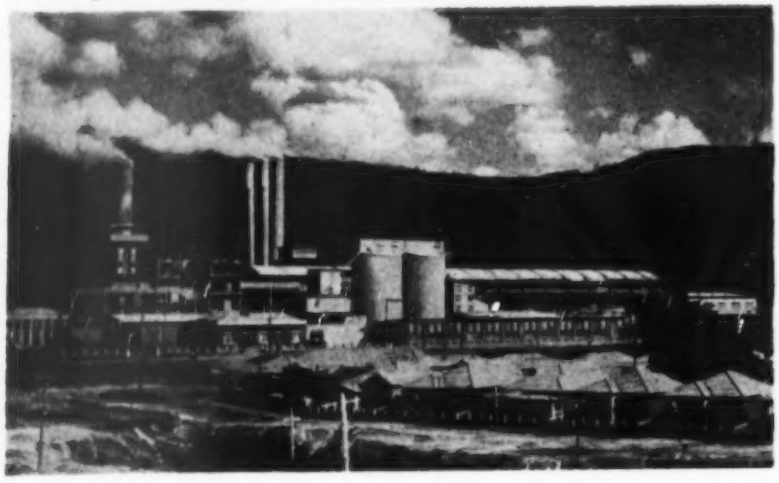
According to official information there is only one operating cement plant in Bolivia, that of Sociedad Boliviano de Cemento, near Viacha, about 45 km. from La Paz. This plant was built in 1925 and is a dry process operation with a capacity of 150 tons per day (280,000 bbl. annually). Its output has been nearly static for some years, being 216,486 bbl. in 1952. Only standard portland cement is produced.

The Viacha plant uses chiefly Allis-Chalmers equipment, including a 6- by 18-ft. raw ball mill, a 7- by 100-ft. kiln, a vibrating cooler, a 6- by 60-ft. rotary cooler, and a 6- by 18-ft. clinker ball mill. There is also a 5½- by 22-ft. raw ball mill, a 7- by 100-ft. kiln and a 5½- by 22-ft. clinker mill, of Bonnot manufacture. Three diesel generators, totaling 1000 kw., supplement purchased power.

It is rumored that a new plant of 100 tons per day capacity is either planned or under construction at Sucre.

The cement and lime operations of Calera Avellanada S. A. near Buenos Aires. A new kiln is being added.

The 10,000-ton per day plant of S. A. Industrias Votorantim, near Sao Paulo, Brazil, is one of the largest in Latin America.



Brazil

The cement industry in Brazil is expanding its capacity at a tremendous rate, but it is doubtful if anyone knows its exact present status. At the end of 1951 there were 11 cement plants in operation. Now it is reliably reported that 12 others are under construction—some of them probably already completed. At least 13 others are in various stages of promotion. This furious activity is the result of a concerted plan to make Brazil self-sufficient regarding its cement needs, and this goal is expected to be reached in 1954. The tremendous increase in demand is due to the rise in living standards in Brazil, in line with rapid industrialization, resulting in a vast building boom.

The 10 plants then in operation produced 1,457,000 metric tons of cement in 1951, an increase of 4 percent over 1950 and about double the 1945 production. Imports in 1951 were 656,094 tons, compared with 404,118 tons in 1950; and in 1952, when production reached a new high of 1,616,000 tons, they totalled 820,000 tons. Estimated production for 1953 is expected to be about 2,370,000 tons, and by 1955 the capacity of the industry should be about 4,300,000 tons annually.

Cia. Nacional The Lone Star Cement Corporation, through its affiliated Cia. Nacional de Cimento Portland, started up a plant in 1933 at Guaxindiba, State of Rio de Janeiro. This originally had a capacity of 800,000 bbl. annually with provisions for doubling capacity when demand requires. The third and fourth kilns (F. L. Smidth) were installed in 1948 along with two Nordberg 9- by 17-ft. wet raw grinding mills, and capacity is now 2,700,000 bbl. annually. Both standard and high early cements are produced.

Another Lone Star subsidiary, Cimento Aratu, S. A., has just completed a new 335 metric ton per day wet-process plant at Aratu, State of Bahia. Equipment furnished by Allis-Chalmers includes two 7- by 33-ft. wet grinding Compeb mills, two 8- by 9- by 300-ft. kilns, two 8-

by 80-ft. rotary coolers, and two 7- by 33-ft. Compeb clinker mills.

Paraiso-Barroso Another established company which is adding a new plant is Cia. de Cimento Portland Paraiso. This firm in 1948 started up a 15-ton per day pilot plant 88 km. from the city of Campos, in the State of Rio de Janeiro. In 1949 a 100-ton kiln was added, and again in 1950. In 1952 a new 250-ton kiln was added, and a duplicate unit is now being installed. When the latter is in operation early in 1954, the capacity of this wet process plant will be 700 tons per day. These and other improvements are being made without hindering production.

The new operation, known as Cia. de Cimento Portland Barroso, is located on the Rio das Mortes, near the city of Barbacena, State of Minas Gerais. This will be a 500-ton per day F. L. Smidth wet process plant and is scheduled to go into operation in 1954. Expansion to 1,300 tons per day is planned for 1955-56.

This organization has also announced that two other new plants of 250-ton daily capacity each are to be built in states where progress is being held up by a lack of cement.

At the Paraiso plant shovels load in the quarry to Koehring Dumptors which haul to the crushing department, where there is a gyratory crusher, two jaw crushers, and a hammermill. A belt conveyor feeds to storage. There are three raw mills —two Allis-Chalmers and one Smidth. The two older kilns are 8½- by 7½- by 150-ft. Vulcan units and have rotary coolers. The recently installed kiln is an F. L. Smidth unit with a Folax air-quenching cooler. All are oil-fired. In the finish department there is a 7- by 26-ft. Compeb mill and a Davidson super-Triplex. Purchased power is supplemented by a plant diesel generating station with four units—three Sulzer and one Atlas.

Improvements to be made in 1954 include, in addition to the new 250-ton Smidth kiln, a new Smidth 250-ton per hour crusher department, new 45,000-ton clinker storage, two 11- by 24-ft. clinker mills, and a Smidth bag packer.

Cimensul Early in 1952 Cia. Cimento Portland Rio Grande do Sul Cimensul put in operation a new plant at Puerto Alegre, State of Rio Grande do Sul. This wet process operation has a capacity of 400 tons per day and is F. L. Smidth equipped.

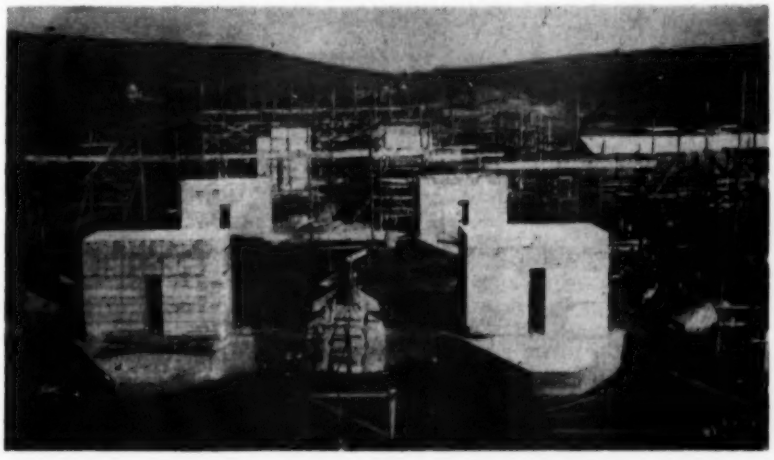
Incisa On January 15, 1953, the production of cement was begun at the new plant of Incisa-Industria e Comercia de Cimento, S. A., at Sorocabana, State of Sao Paulo. It has a capacity of 200 tons daily and produces only standard portland cement. Provisions are made for future expansion. The equipment for this plant was supplied by Compagnia Generale Impianti of Genoa, Italy.

The limestone quarry is 14 km. from the plant. A Northwest shovel and an Eimco-104 loader load into trucks for haulage. Major plant equipment includes 2.2- by 12.0 meter tube mills and a 2.8- by 62.0-2.8-meter calcinator.

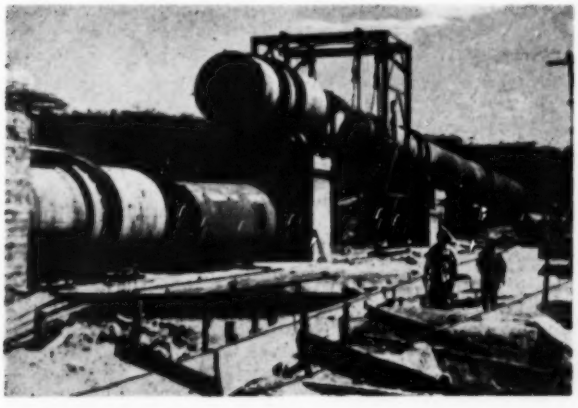
Vale do Paraiba Cia. de Cimento Vale do Paraiba late in 1951 put in operation a slag-cement plant using slag from steel mills. It is said to be the first plant in South America to produce this type of cement. It is a Smidth dry process operation with a capacity of 400 tons daily (150,000 bbl. annually) and is located at Volta Redonda, State of Rio de Janeiro.

Itau One of the largest producers of cement in Brazil is Cia. Cimento Portland Itau with two plants—at Itau des Minas, State of

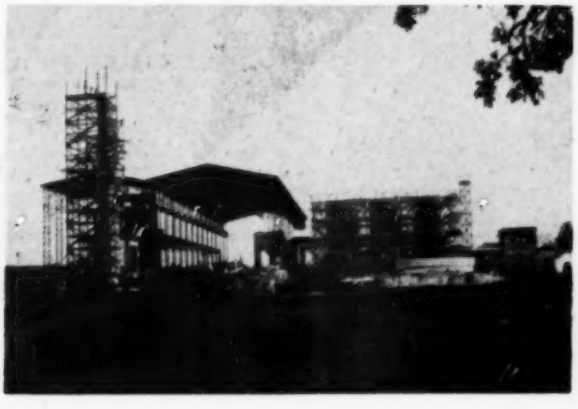
The 500-ton per day plant of Cia. de Cimento Portland Barroso, which is near completion in the State of Minas Gerais, Brazil.



The 300-ton per day plant of Itapessoca Agro Industrial S. A., which is under construction near Recife, Brazil.



The new 200-ton per day plant of Incisa-Industria e Comercia de Cimento S. A. shown before completion.



Minas Gerais and at Cidade Industriale, near Belo Horizonte, also in Minas Gerais. Both of these plants are now being enlarged. A third plant under construction at Corumba, State of Mato Grosso, is expected to be in operation in 1954. It will be a wet process operation with a capacity of 7,500 tons per month and will use F. L. Smidth equipment. This plant will be operated by the affiliated Cia Cimento Portland Corumba.

The company's original plant at Itau des Minas was built in 1939 and has a present capacity of 7,000 metric tons per month. It is a wet process plant. A third kiln, of F. L. Smidth manufacture, is now being installed and will double capacity —to 15,000 tons per month—by the end of 1953.

The Belo Horizonte plant was built in 1946 and now has a capacity of 15,000 tons per month. It is a wet process operation. Its capacity is also being doubled by the addition of a third kiln (F. L. Smidth) to be in operation by the end of the year. Other improvements are being made to improve economy of operation, including a new aerial transportation system from the quarry to the plant.

Maringa Cia. de Cimento Portland Maringa, a limited liability company with a share capital of 80,000,000 cruzeiros ($4,000,000) has a new plant under construction near Itapeva, State of Sao Paulo. This 250-ton per day wet process plant is expected to be in operation late in 1953 or early in 1954. F. L. Smidth equipment is being installed, including that used for processing the limestone. A single 98-meter kiln is used, and provisions have been made for the installation of a second kiln and other equipment in the near future.

Raw materials come from two quarries and an excess of silica and magnesium makes it necessary to use flotation in their preparation. Caterpillar tractors and Athey scraper wagons are used to haul material. Oil is being used for fuel temporarily, but equipment has been installed for coal burning. A hydroelectric plant is being built at a waterfall near the plant and will have a capacity of 2,500 kv.-a.

Caue Cia. Cimento Portland Caue has a new plant under construction at Pedro Leopoldo, 25 miles north of Belo Horizonte, capital of the State of Minas Gerais. This is a 300-metric ton (1800-bbl.) per day wet process plant and is expected to be in operation in 1954. Provision is made for future tripling of present capacity. All equipment is being supplied by Allis-Chalmers.

Two types of limestone and a local clay are the raw materials. A jaw crusher and a Dixie hammermill are used at the quarry and the raw-grinding department has a 7- by 28-ft. 2-compartment Compeb mill and slurry tanks. There is a 10- by 340-ft. kiln and a 4½- by 70-ft. air-quenching cooler. A gypsum crusher can also be used for clinker when necessary. The 8- by 29-ft. 2-compartment Compeb finish mill is in closed circuit with a 16-ft. air separator. A Fuller-Kinyon pump will feed cement to silos, and bagging will be done by a four-tube St. Regis packer.

Itapessoca The firm of Itapessoca Agro Industrial S. A., in mid-1952 began the construction of a 300-ton per day F. L. Smidth wet process plant on the small island of Itapessoca, 35 miles north of Recife, State of Pernambuco. It is expected to be in operation early in 1954.

A diesel shovel and trucks will feed the stone to a double hammermill from which it will be conveyed to storage. The raw department houses an 8- by 31½-ft. Unidan ball mill, a clay wash mill, and slurry tanks. The 10- by 384-ft. oil-fired kiln has a special slurry drying device as well as a chain system for better fuel economy, and a Folax grate cooler. The 10- by 31½-ft. Unidan clinker mill is equipped for internal water spray cooling. Cement is conveyed to silos by a Fluxo air transporter, and a 12-spout Fluxo packer is used. A power plant, using Swiss equipment, has four 1200-hp. diesel alternator sets.

Ponte Alta Cia. de Cimento Portland Ponte Alta is reported to have under construction a new 150-ton per day one-kiln dry process plant at Araxa, State of Minas Gerais, to be completed late in 1953. F. L. Smidth equipment is involved.

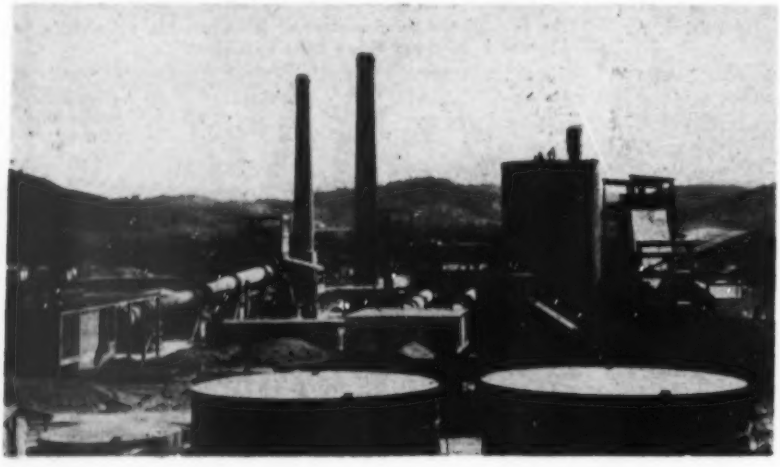
Branco de Brazil Cimento Portland Branco de Brazil, S. A., is building a new Allis-Chalmers 100-metric ton dry-process plant at Rio de Janeiro, D. F., which is expected to be in operation early in 1954. Major equipment includes a 7- by 14-ft. raw mill, a 7½- by 200-ft. kiln, two rotary driers, a 7- by 14-ft. clinker mill, etc.

Catarinese Cia. Catarinese de Cimento Portland is reported to have under construction a 250-ton per day F. L. Smidth wet process plant at Brusque, State of Santa Catarina.

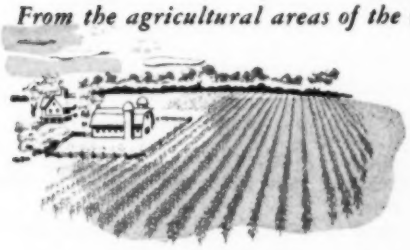
Votorantim-Poty Brasileiro-Rio Branco An important factor in the cement industry in Brazil is an affiliated group of four plants which were built over a period of years in different parts of the country. One of these ranks among the largest plants in Latin America. The oldest of these plants, operated by S. A. Industrios Votorantim at Santa Helena, near Sorocaba, State of Sao Paulo, is a five-kiln F. L. Smidth wet process operation with a capacity of 10,000 bbl. daily. It was built in 1936 and produces only standard portland cement.

The plant of Cia. de Cemento Portland Poty, at Sao Jose, Paulista, State of Pernambuco, went into operation in 1942. It is a two-kiln

The plant of Cia. de Cimento Portland Paraiso at Campos, which is being expanded to a capacity of 700 metric tons daily.



From the agricultural areas of the nation...



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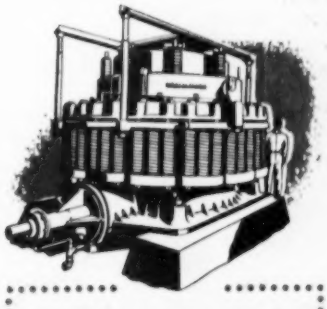

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Smidth wet process plant with a capacity of 420 tons daily. It produces standard portland cement.

Cia. Cimento Brasileiro built its plant at Esteio, State of Rio Grande do Sul, in 1947. In 1951 it was reported that this plant was expanded by the addition of a 10- by 340-ft. kiln and a 10- by 120-ft. cooler, both of Allis-Chalmers manufacture. This two-kiln plant now has a capacity of 450 tons daily.

The newest plant, that of Cia de Cimento Portland Rio Branco, will be completed in 1953. It is located at Rio Branco, State of Parana, and is a one-kiln F. L. Smidth operation with a capacity of 250 tons daily.

Perus An important expansion program is being carried on by Cia. Brazileira de Cimento Portland Perus for completion late in 1953. This 300-ton per day (300,000-sack per month) dry process plant was built in 1926 and is located at Perus, State of Sao Paulo. This program will increase capacity to 700,000 sacks per month and a later expansion to 1,000,000 sacks is planned. Allis-Chalmers equipment being installed includes a 10- by 340-ft. kiln, a 10- by 120-ft. rotary cooler, and a 9½- by 14-ft. mill.

Barbara The firm of Barbara and Cia. Ltda. operates a small plant at Cachoeiro de Itampemirim, State of Espiritu Santo, about which little is known. It was built in 1936 and has a capacity of 40 tons per day from one kiln.

Paraiba Little is known about Cia. Paraiba de Cimento Portland, S. A. which operates a 400-ton per day Smidth wet process plant at Joao Pessoa, State of Paraiba. This plant was built in 1935 and produces only standard portland cement.

Unconfirmed Reports Another plant was reported in 1952 to be under construction at Corumba, State of Mato Grasso. This was to be completed in 1953 and to have a capacity of 90,000 tons annually. Official reports in 1952 also had four proposed plants scheduled for completion in 1954. These were: Cia. Cimento Portland Volpini, Cachoeiro Itampemirim, State of Espiritu Santo, 200,000 tons annually; Cia. Cimento Portland Goias, at Goiana, State of Goias, 90,000 tons; Cia. Cimento Portland Massoro, at Massoro, State of Rio Grande do Norte, 90,000 tons; Cia. Brs. Ligantes Hidraulicos, at Imbitiba, State of Rio de Janeiro, 250,000 tons.

Five other plants were reported to be planned for later completion. One of these, Cia. Paulista Cimento, to be built at Cap. Benito, State of Sao Paulo, was to have a capacity of 110,000 tons annually. The others are: Projeto Maia Lello, Sao Roque, State of Sao Paulo; Cia. Fluminense Cimento Portland, Cordeiro, State of Rio de Janeiro; Cia. Cimento Portland Parana, Curitiba, State of Parana; Cia. Bahia de Cimento Portland, Salvador, State of Bahia.

Late in 1951 Cia. Construtora Capua y Capua was reported to have ordered equipment for a 100-ton per day white cement plant at Parada Lucas, near Rio de Janeiro.

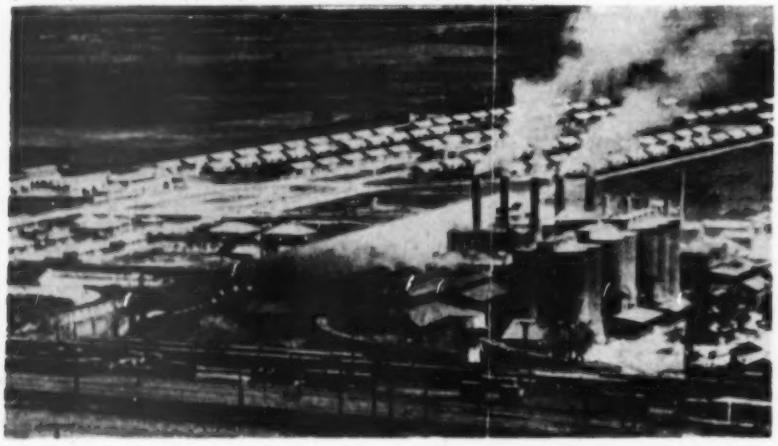
Chile

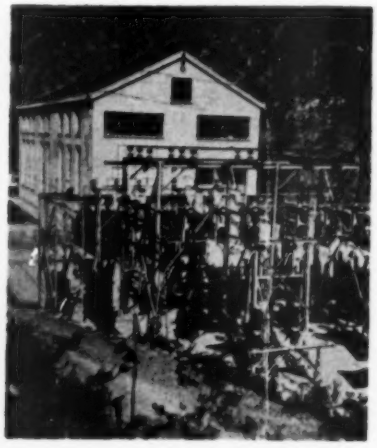
The latest official figures on cement production in Chile are for the first nine months of 1951 when 380,258 metric tons were produced by two plants. This was an increase over 1950 when those two plants produced 400,710 tons. The output of several smaller plants and that of a new slag cement plant completed in 1951 were not included. Production in 1952 from all plants was expected to exceed 800,000 metric tons. The ban on exports was lifted in 1951 and export of up to 100,000 tons was authorized for 1952.

El Melon—Juan Soldado The biggest producer in Chile is Sociedad Fabrica de Cemento de El Melon, which operates a 2,000-bbl. per day dry process plant at La Calera. Its affiliate, S. A. Cemento Juan Soldado Consolidada, operates a 640-bbl. wet process plant at La Serena. The El Melon plant was originally built in 1909 but has since been greatly enlarged and improved, as has also the Juan Soldado plant.

The El Melon plant has had an interesting history. Its original capacity was 60 tons daily from one kiln. In 1928 a new 250-ton kiln and new mills were added and a further two-kiln expansion in 1936 raised capacity to 1250 tons daily. In 1946 two more kilns were added, bringing the capacity to 1,750 tons daily. Traylor, Allis-Chalmers, and Smidth kilns are used. All are now equipped with electrical or mechanical dust collectors. Power was originally produced in a steam generating plant which was abandoned for purchased power in 1928. A growing power shortage induced the company to build a new hydro-electric plant in 1939, about 80 km. from the plant. This has a capacity of 18,000 kw. totalling 120,000,000 kwh. annually. About half of this is required by the company, the balance being sold to the power company.

The 2,000-bbl. per day plant of Sociedad Fabrica de Cemento de El Melon at La Calera, Chile (left), and the 18,000-kw. hydro-electric power plant which supplies power for the El Melon plant (right).





El Melon has plans to build a new plant in southern Chile. This may use slag from blast furnaces as a raw material.

Little recent information is available on the plant of Juan Soldado which went into operation in January 1946. It then had a capacity of 3,500 bbl. daily from four 9½- by 8- by 199-ft. Vulcan kilns. Oliver United slurry filters and a 6,000-kw. turbine generator were later added.

Polpaico The newest plant in Chile, Cemento Cerro Blanco de Polpaico, S. A. is located in Polpaico about 30 miles from Santiago de Chile, close to the Pan-American Highway. It was designed and erected during 1946-1949 and put into operation in 1950. Annual production capacity is about 240,000 long tons.

Main supplier of the plant was the Kennedy-Van Saun Mfg. & Eng. Corporation, which sublet certain sections to other firms, as e.g. to the Dorr Company, Separation Process Company, Westinghouse, etc.

The company owns extensive limestone deposits adjacent to the factory. The limestone is extracted in open quarry operations and carried to the crushing plant in 15-ton trucks. Crushing is done in three stages by gyratory crushers, the second and third stage working is closed circuit with a vibrating screen.

The limestone available has a high silica content, and part of it has to be treated by flotation. It is ground in two 9- by 12-ft. wet tube mills in closed circuit with rake classifiers to a 90 percent minus 200 mesh thin slurry, which is fed to two Hydroseparators. The hydro-overflow is of sufficient grade and passes directly on to the two 130-ft. dia. thickeners, while the overflow is treated in three rows of seven Fagergren flotation cells. The concentrates join the hydro-overflow. The thickened mix of concentrates and hydro-overflow is then drawn off to the blending silos.

A portion of the classifier overflow is taken directly to a 120-ft. third thickener, thus producing the low-grade limestone slurry required in the blending operation.

Kaolin and iron ore are drawn from deposits situated at a distance of about 15 miles, also owned by the company, and are transported by motor trucks to the raw material storage in the works. Grinding of these materials in to desired proportions is effected in open circuit in an 8- by 11-ft. tube mill.

In order to safeguard uniformity of the product at all times, the kiln feed is obtained by mixing the following four slurries:

1) High grade limestone slurry
2) Low grade limestone slurry
3) Kaolin-iron ore slurry with high kaolin content
4) Kaolin-iron ore slurry with high iron ore content.

After blending and testing, the final mix is stored in a kiln feed bin, whence it is pumped to the slurry disc filters above the two 11- by 10- by 300-ft. rotary kilns. For burning, coal from the Lebu district in the South is used. This is dried and ground, and direct fired by means of air swept tube mills. The kilns are provided with rotary coolers.

The clinker grinding department contains two 8- by 22-ft. tube mills in closed circuit with Sturtevant air separators. Pneumatic pumps deliver the finished cement to the storage silos. By means of a screw conveyor and bucket elevator it is then transported to the packing bins.

The current used is received from a hydro-electric plant at a distance of about 30 miles, partly owned by the company. The company produces a portland cement similar to ASTM Standard Type No. II.

El Romeral No information is available on the plant which Fabrica de Cemento El Romeral has been reported to have at Coma de San Jose de Maiso, Chile.

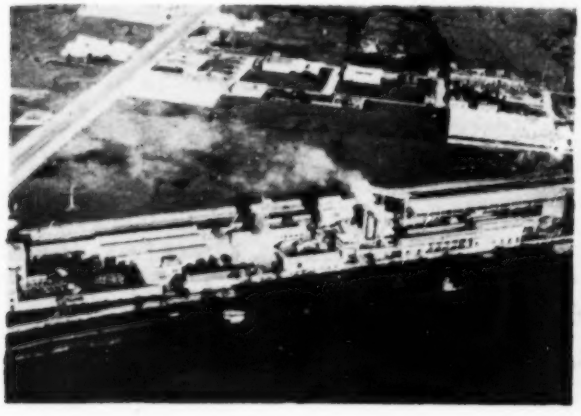
Colombia

No recent information is available on general conditions in the cement industry in Colombia. Production in 1950 was about 4,272,000 bbl., and this took care of all the requirements of the country with an exportable surplus of about 72,000 bbl. Venezuela was the principal buyer. At the end of 1950 stocks at mills were reported to be very heavy. The expansion of production facilities now under way indicates that present demand must be approaching the capacity of the industry.

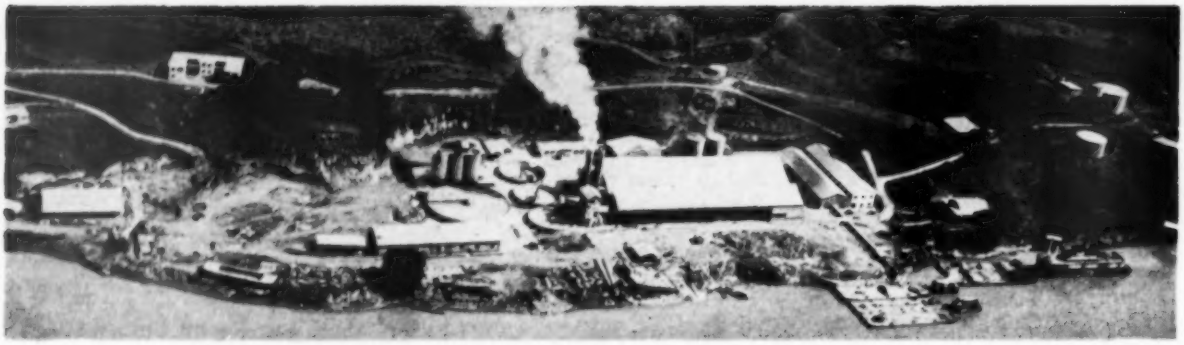
Argos—Del Valle—Del Caribe Compania de Cemento Argos, with its affiliated companies, is the largest producer of cement in Colombia. It operates a 300-metric ton per day wet process plant at Medellin, Department of Antioquia. Argos was also the founder and is the principal shareholder of Cementos del Valle, S. A. which has a 750-ton plant near Cali, Department of Del-Valle del Cauca, and of Cementos del Caribe, S. A. which has a 300-ton per day plant at Barranquilla. Argos is also the principal shareholder of Marmoles y Cementos del Nare, S. A., and Cementos el Cairo S. A. in the Department of Antioquia. All are wet process operations.

The Argos plant was built in 1936 with a capacity of 50 metric tons daily, using F. L. Smidth equipment. Capacity was later increased to 300 tons. It operates two limestone quarries located 68 and 97 miles from

The 300-ton per day plant of Cia. de Cemento Argos at Medellin, Colombia. This company, with its affiliates, is Colombia's largest producer.



The plant of Fabrica de Cimento Samper, near Bogota, Colombia. Built in 1908, this plant now produces 600 metric tons daily.



Marmoles y Cementos del Nare S. A. operates this 500-ton per day plant in the Province of Medellin, Colombia. The company also has a new 100-ton white cement plant under construction at Medellin.

the plant. Two of the three kilns in this plant are 1.7- by 1.95- by 45-meters, and the other is 2.28- by 2.73- by 72.2 meters.

The Del Valle plant was built in 1941 with a capacity of 200 metric tons daily, using Smidth equipment and a Dorr closed-circuit wet grinding system. In 1949 a 300-ton per day addition was made, using Allis-Chalmers equipment. This included a 9½- by 11- by 9½- by 375-ft. kiln, a 4½- by 70-ft. air quenching cooler, two 9- by 13-ft. ball mills, and a 7- by 24-ft. Compeb mill. Another 300-ton expansion is now under way which will increase capacity to 800 tons daily by the end of 1953. Allis-Chalmers equipment being installed includes a 9½- by 11- by 9½- by 375-ft. kiln and a 5- by 22-ft. clay grinding mill.

The Del Caribe plant was built in 1948 with a capacity of 300 tons daily. Allis-Chalmers equipment includes two 8½- by 10- by 7½- by 300-ft. kilns, two 3- by 50-ft. air-quenching coolers, a 9- by 13-ft. ball mill and an 8- by 29-ft. Compeb mill. A Dorr closed-circuit wet grinding system is used. Only standard portland cement is made.

Del Nare—El Cairo The firm of Cementos el Cairo S. A. has for many years operated a cement plant at El Cairo, Municipality of Santa Barbara in the Department of Antioquia. Near Puerto Berrio, in the Municipality of Medellin the firm of Marmoles y Cementos del Nare, S. A. operates a plant. No affiliation is known but both companies have the same officers and sales organization. Both produce only standard portland cement. Del Nare is now building a new 100-metric ton per day white cement plant at Medellin, which is expected to be in operation by June, 1954. Equipment being supplied by Allis-Chalmers includes a 6- by 21-ft. Compeb wet mill, an 8- by 200-ft. kiln., a 5- by 40-ft. rotary drier, and a 6- by 21-ft. Compeb clinker mill.

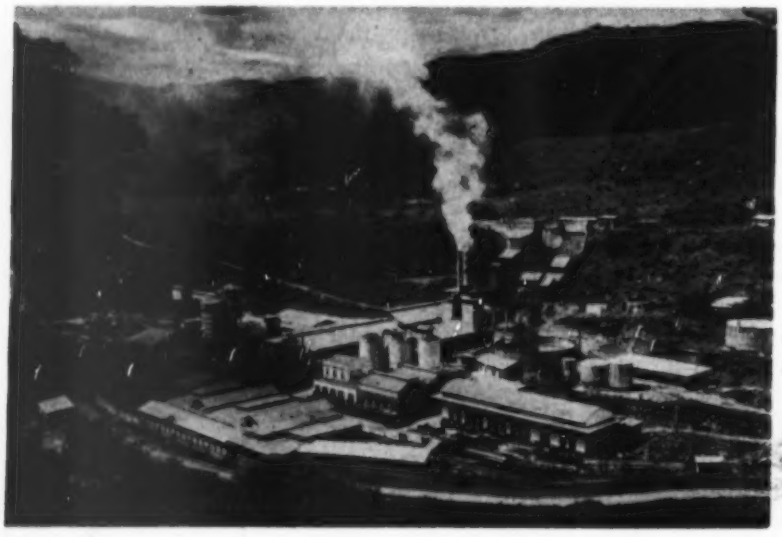
The El Cairo plant is a 250-metric ton per day Allis-Chalmers wet process operation. The limestone is crushed and milled at the quarry, and the slurry is then pumped 5 km. to the plant. There the 50 percent moisture content of the slurry is reduced to 36 percent by decantation. The company operates its own 4,400-kw. hydro-electric plant.

The Del Nare grey cement plant is located on the Magdalena River, between Puerto Berrio and La Dorada. It is a 500-metric ton per day wet process operation with two kilns, 240- and 275-ft., of Edgar Allen and F. L. Smidth manufacture, respectively. The limestone is crushed and ground at the quarry and pumped 15 km. to a Dorr thickener at the plant. The 5-in. pipeline has two intermediate pumping stations. A company-owned fleet of river boats is used to transport cement, gypsum and fuel oil. The company's 3000-kw. hydroelectric plant is to be enlarged to 6000 kw. by September 1954, to take care of the new white cement plant.

Diamante Cia. de Cementos Portland Diamante has since 1927 been an important factor in the cement industry in Colombia. It operates one plant at Apulo, Municipality of Rafael Reyes, Department of Cundimarca and another at Bucaramanga, Municipality of Bucaramanga in the Department of Santander. This company also operates quarries, sand pits, and a ready-mix plant in Bogota.

The Apulo plant is a 400-ton per day, two-kiln F. L. Smidth wet process plant. Limestone is obtained from underground mines. Power is supplied by a company-owned 2000-kw. hydro-electric plant and two 1500-kw. diesel generators.

The Bucaramanga plant is a 100-ton per day Smidth wet process plant, and it has a 750-kw. hydro-electric plant and a 300-kw. diesel generator. Both plants burn fuel oil and produce only portland cement.



The Apulo, Colombia, plant of Cia. de Cementos Portland Diamante has a capacity of 400 metric tons daily.

The wet-process plant of Cementos el Cairo S. A. in the Department of Antioquia, Colombia, has a daily capacity of 250 metric tons.

Samper One of the oldest but largest plants in Colombia is operated by Fabrica de Cemento Samper at La Liberia, county of La Calera, Department of Cundimarca, about 15 miles northeast of the capital city of Bogota. This is a wet process operation with a capacity of 600 metric tons daily (1,616,000 bbl. annually.) Only standard portland cement is produced. The original plant was built in 1908 by the firm of Hijos de Miguel Samper. The present owners took over in April, 1929.

The original quarry had been opened by the Spaniards over 300 years ago, and the ruins of their old kilns may still be seen. It is planned to open a new quarry 15 miles east of the plant in 1954. A 1000-ton per hour primary crusher and two hammermills will be installed there, and materials will be hauled 12 miles by an aerial cableway system now under construction.

The original cement plant had a single 10-ton per day vertical kiln. A 10- by 210-ft. Polysius kiln was installed in 1934, and a 11½- by 415-ft. F. L. Smidth kiln was added in 1947. The capacity of the older kiln has also been increased by adding a Miag Calcinator and an Allis-Chalmers air-quenching cooler. Raw materials consist of limestone, clay, sand, iron ore and gypsum. The kilns are coal fired. Power is supplied by two company-owned hydroelectric plants located about 20 miles northeast of the plant, with generating capacities of 4,200 and 4,400 kw.

Near the cement plant the company has over 50 houses for its employees, a fully-equipped 26-bed clinic, a church, three schools, two clubhouses with recreation halls, a football field, tennis and basketball courts, and a branch office of a savings bank.

Ecuador

Very little information is available on the cement industry in Ecuador. Only one plant is operated, but two others are contemplated. Output has increased steadily for many years, reaching a record of 78,964 metric tons in 1951. This was a sharp increase over the 1950 output of 57,612 tons.

One of the proposed plants is that of Cemento Chimborazo, S. A. at Rio Bamba which is to have a capacity of 150 metric tons daily. This will be supplied with Miag equipment from West Germany. Capital will be supplied by the Ecuadorian Government and the City of Rio Bamba. The other plant, Fabrica de Cementos Cerro Azul, C. A., is to be at Cerro Azul. Its promoters are the largest producers of lime in Ecuador.

Nacional The plant of La Cemento Nacional is located 8 km. west of Guayaquil and is a dry process operation with an annual capacity of 600,000 bbl. When purchased by this company in 1934 from German interests, this plant had a capacity of 100,000 bbl. annually. A new quarry and crushing department were added in 1946. Both clay and limestone are dried in two rotary driers. Raw grinding is done in a 7- by 22-ft. ball mill, in closed circuit with air separators. There are three rotary kilns—two 6½- by 100-ft. Krupp units and a newer 8- by 150-ft. Kennedy-Van Saun kiln. Clinker is ground in a 7- by 24 ft. 2-compartment ball mill with air separation.

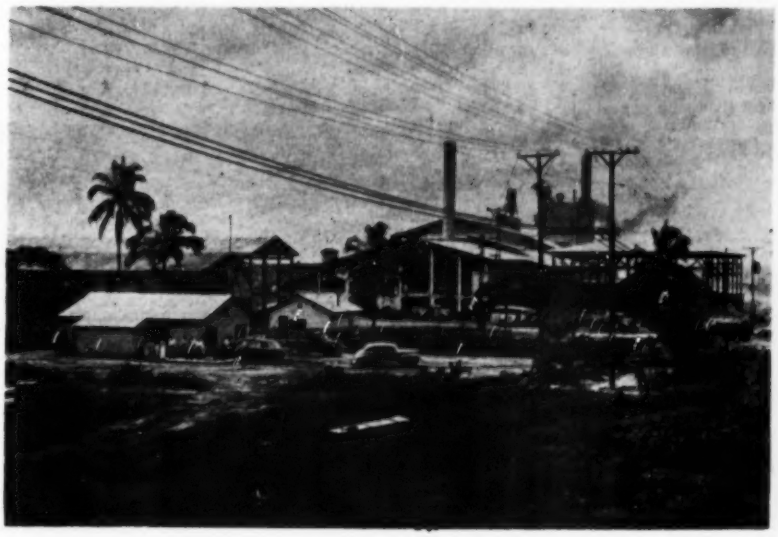
Paraguay

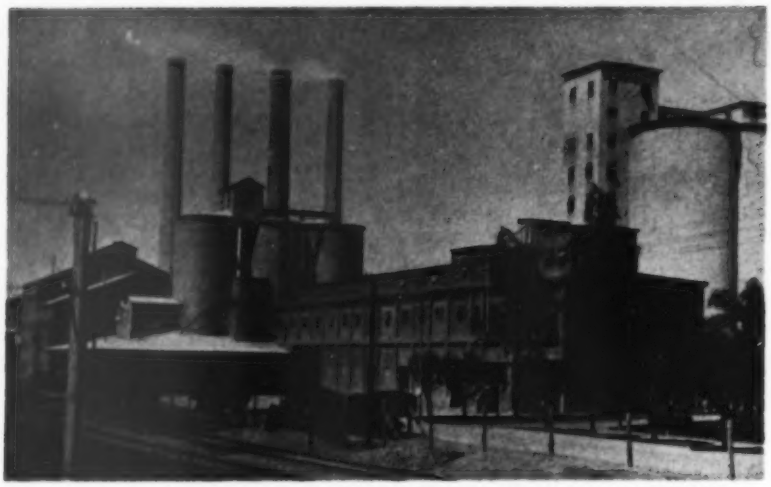
Little information is available on the cement situation in Paraguay and the one small plant in that country. Industrial, Comercial y Financiera Vallemi operates a plant at Puerto Vallemi, Alto Paraguay. This produces only standard portland cement and has a capacity of 200,000 bbl. annually (100 metric tons daily).

Peru

Production of cement in Peru in 1951 reached a new peak of 2,160,925 bbl. (170 net kilos each), about 11 percent over the 1950 record. This all came from the only plant then in existence, that of Cia. Peruana de Cemento Portland which had a capacity of 6,000 bbl. daily and went into operation in 1916. Cia. Peruana has its clinker plant at Altocongo and its grinding plant in Lima. This company now has under

The 600,000-bbl. per year operation of El Cemento Nacional near Guayaquil is the only cement plant in Ecuador.





Cia. Uruguaya de Cemento Portland S. A. operates this 1,600,000-bbl. per year plant near Sayago, Uruguay.

construction a 300-metric ton per day extension to this plant which is expected to be in operation early in 1954. The equipment includes a 9½- by 300-ft. dry process kiln, a 4½- by 60-ft. dry-grinding ball mill, all Allis-Chalmers. This plant produces only standard portland cement.

A new company organized in 1952, Compania Nacional de Cemento Portland del Norte, S. A., is reported to have ordered equipment for a 2,000-bbl. per day plant to be built at Pacasmayo.

A 250-metric ton per day is also reported scheduled for completion late in 1953 at Chilca by Cia. de Cemento Chilca, S. A. This is an F. L. Smidth wet process operation.

Uruguay

According to official reports the production of cement in Uruguay declined slightly in 1951, totaling 301,705 metric tons, compared with 305,479 tons in 1950. This production fell far short of needs, and pressure was being brought on the government to supplement production from the two privately-owned plants. The largest plant, that of Compania Uruguaya de Cemento Portland, is a wet process operation with an annual capacity of 1,600,000 bbl. (850 metric tons daily). It has four 9- by 187-ft. kilns. This plant is located near Sayago and is a subsidiary of the Lone Star Cement Corporation. Two types of cement are produced.

The plant of Compania Nacional de Cementos S. A. is located at Pan de Azucar, Maldonado. It has a capacity of 34,000 metric tons annually of white portland cement. It is a wet process plant with F. L. Smidth equipment.

Venezuela

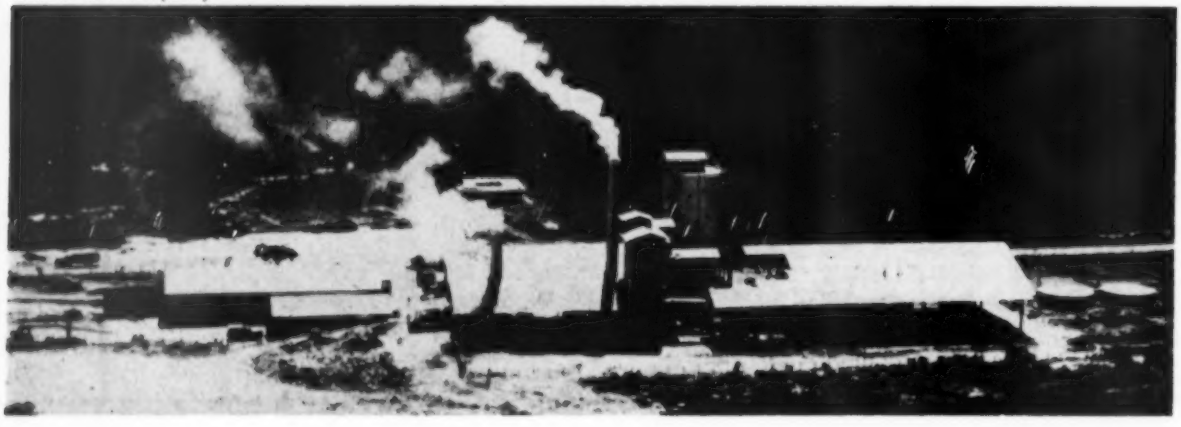
Through the end of 1951 an interesting condition existed in Venezuela with respect to cement supply. From 1949 through 1951 the consumption of cement varied between 830,000 and 890,000 metric tons annually. In 1949 the imports were 590,905 tons and domestic production was 299,723 tons. In 1950 imports fell to 329,179 tons and production rose to 501,005 tons. This trend continued in 1951 when imports fell further to 240,530 tons and domestic production rose to 621,491 tons. It was hoped then that by the end of 1952 the domestic industry could supply nearly all that country's needs. According to recent information all plants in Venezuela are now operating at full capacity.

Nacional C. A. Fabrica Nacional de Cementos operates a plant at La Vega Caracas, which is now one of the largest in Latin America. It is an F. L. Smidth four-kiln dry process plant, which will have a capacity of 9,000 bbl. per day in 1954. When built in 1909, it had one small rotary kiln.

Carabobo The only other pre-World War II plant in Venezuela is that of Cemento Carabobo Sucra at Valencia, which went into operation in 1941 with one 100-ton per day F. L. Smidth kiln. The company was reorganized in 1946, and its production was immediately expanded by the installation of an 8½- by 10- by 300-ft., 200-ton Allis-Chalmers kiln, a 3- by 50-ft. clinker cooler and a 9- by 10-ft. Preliminator. It is now rated at 630,000 bbl. annually. This wet process plant produces only standard portland cement.

Venezolana The largest cement producing company in Venezuela is C. A. Venezolana de Cementos which operates three plants with a combined capacity of 1,450 tons daily. Expansions under way or contemplated will increase this to over 2,000 tons daily by early 1954, and further expansions are planned. These plants are at Bar-

The Barquisimeto plant is the smallest of three operated in Venezuela by C. A. Venezolana de Cementos. A new 250-ton plant is to supplement its 45-ton capacity.



quisimeto, Maracaibo (State of Zulia), and Pertigalete (State of Anzoategui). They were built in 1945, 1947 and 1949 respectively.

The Pertigalete plant is the largest of the three and is on the seashore in eastern Venezuela. It has a present capacity of 850 tons daily, but a new kiln soon to be in operation will increase production to 1200 tons. This wet process plant went into operation in 1949 with one 250-ton F. L. Smidth Unax kiln. This is said to have been the first cement plant to introduce gas turbines—using two Brown-Boveri turbo-generators of 1650 kw. each—but these burned a mixture of fuel oil and diesel oil until gas became available in 1952. Four such turbines now generate 14,000 kw., the two recently installed being 5,000-kw. units.

The plant's strategic position on the Caribbean and the assurance of growing demand prompted the expansion program begun in 1951, which will be completed in late 1953 or early 1954. The expansion program is widespread, including dock facilities for both bulk and bag cement shipments and the receipt of raw materials, a new 400-ton per hour crushing department, an Allis-Chalmers clinker mill, four Unidan mills, extension of the storage, etc.

A 4,000-ton capacity distributing plant with packing facilities is to be built at Catia La Mar, near the port of La Guaria as an outlet for cement in the Caracas-La Guaira area. This plant will be completed late in 1954, at which time delivery is expected of a 3,000-ton bulk cement ship.

The Maracaibo plant is the second largest of the company with a present capacity of 550 tons per day on the wet process. It is located 12 km. south of Maracaibo.

The plant started in 1947 with one kiln, but a year later its output was doubled by the addition of a second kiln. Milling equipment included at the start one F. L. Smidth Unidan wet mill and a secondary for raw grinding. Clinker grinding was accomplished through one Unidan mill with separator and a combination of one Smidth Tirax primary with a secondary. In 1952, a new Allis-Chalmers raw grinding mill was installed, and the Tirax combination is to be replaced late this year by one Smidth Unidan.

A distinctive feature of this plant is that the traveling crane structure for clinker and raw material storage extends over a channel on Maracaibo Lake. This construction facilitates the reception of raw materials at the plant, as the quarry and crusher are located in the island of Toas at the mouth of the lake. Crushed limestone and other raw materials from Toas are transported by barge to the cement plant. These barges are unloaded in the channel by two traveling cranes, which provide easy handling and storage of materials at the plant.

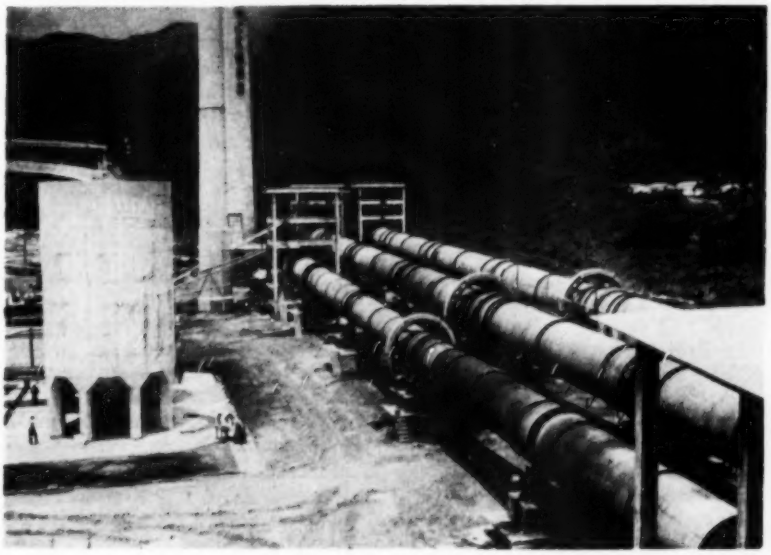
The Maracaibo plant also has a dock for shallow draft vessels and facilities for shipping cement in bulk and in bags throughout the lake area. Power is obtained from the local power company, and gas is piped in from nearby natural gas fields.

The Barquisimeto plant is the oldest and smallest plant of C. A. Venezolana de Cementos, located near the city of Barquisimeto. It started in 1945 with a capacity of 45 tons per day, but the construction of a new plant of 250 tons daily capacity at the same site is due to start soon.

The old plant using the dry process consists of adapted portable equipment acquired during the last war, including one small kiln and two dry mills. After the completion of the new large plant, it will be used for white cement production.

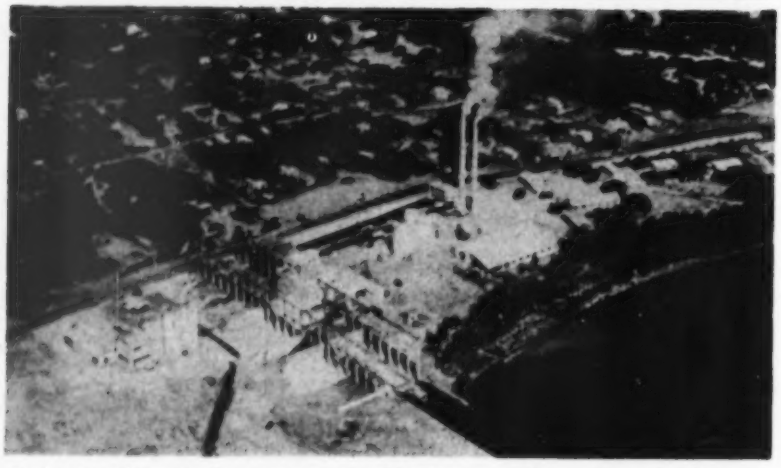
The new plant will use the wet process and is expected to be ready for operation late in 1954. In addition to the 250-ton kiln it will include ample crusher capacity, one 700-hp. wet mill and one 450-hp. dry mill at the start. Future extensions may give this plant a much larger ultimate capacity.

Tachira Little is known about the plant of C. A. Cementos Tachira at San Cristobal except that it is a 150-ton per day wet process plant using F. L. Smidth equipment.



General view of the Pertigalete plant of C. A. Venezolana de Cementos (above) and the plant's three rotary kilns (below). This plant has a daily capacity of 850 tons, which is being increased to 1,200 tons.

The 630,000-bbl. per year facilities of Cementos Carabobo Sucre at Valencia, Venezuela. Built in 1941, the plant was expanded in 1947.



C. A. Venezolana de Cementos operates this 550-ton per day wet process plant near Maracaibo. Shipments via water are made.

CENTRAL AMERICA

Guatemala

Probably the pioneer in the cement industry in South and Central America is the firm of Cementos Novella, S. A. with a dry process plant at La Pedrera, three miles from Guatemala City in Guatemala, Central America. This company was formerly known as Carlos F. Novella y Cia. Fabrica de Cemento. This plant produces 1400 bbl. of A.S.T.M. Type I portland cement daily and supplies all the needs of the entire country. The latest production figures show an output in 1951 of 61,180 metric tons (1,344,655 94-lb. bags), a new record. This plant was completely described in the May, 1951 issue of PIT AND QUARRY.

The original plant was built in 1897 at the present location by the late Carlos Novella. A home-made rotary kiln fired with powdered coal was used. Difficulties with this fuel led to the replacement of this kiln in 1901 by a vertical shaft kiln. This was replaced in 1914 by a 6- by 60-ft. oil-fired rotary kiln. A 7- by 100-ft. kiln was added in 1927 and a 7- by 167-ft. kiln in 1944. Plans are under way for further expansion by the addition of a kiln, a drier, a finish mill, and other equipment.

In addition to portland cement the company also produces commercial aggregate and bagged hydrated lime of spray grade. The lime is burned in a vertical shaft kiln.

Panama

The latest official information on Panama and its one cement plant is for 1951. In that year Cementos Panama, S. A., produced 439,870 bbl. of standard and high-early-strength portland cements. This was a considerable increase over 1950 and 1949 when only about 300,000 bbl. were produced. Exports in 1951 were 49.2 percent of production, most of it going to El Salvador and the Canal Zone. Production in 1952 was expected to exceed 1951 by 15 percent.

Cementos Panama, S. A., operates near the city of Panama a 300-metric ton (1800-bbl.) per day wet process plant which went into operation in 1948. This Allis-Chalmers plant has two 8½- by 10- by 7½-by 300-ft. kilns, two 3- by 50-ft. air-quenching coolers, a 9- by 13-ft. raw ball mill, and an 8- by 30-ft. Compeb clinker mill. Both standard and high-early-strength portland cements are produced.

Nicaragua

The latest official information on cement production in Nicaragua shows that production of its one cement plant in 1952 was 456,400 sacks (114,100 bbl.), compared to 475,900 sacks (118,975 bbl.) in 1951. With an increased demand for cement due to a stepped up construction program, the country was compelled to rely upon imports from Panama to satisfy its requirements. Production in 1950 was 96,815 bbl., slightly above the 1949 figure. The increase of 22.8 percent in 1951 output over 1950 was due to the installation of new equipment. This plant is operated by Compania Nacional Productora de Cemento, S. A. and is located at San Rafael del Sur. It is an F. L. Smidth wet process plant with a capacity of 125,000 bbl. (165 metric tons) daily. Only standard portland cement is made.

El Salvador

Probably the latest Latin America country to become self sufficient with respect to its cement needs is the republic of El Salvador. Late in 1952 the new 900-bbl. per day plant of Cemento de El Salvador, S. A., went into operation at Playa Los Flores, Acajutla. The equipment for this modern wet process plant was supplied by the Allis-Chalmers Manufacturing Company, and the plant was built and the machinery erected by the Macdonald Engineering Company. This plant was completely described in the April, 1952, issue of PIT AND QUARRY.

The raw materials used are somewhat unusual, consisting of marine

shell having a high $CaCO_3$ content and volcanic pumice containing silica and alumina. The shell when excavated from beaches and coves is so fine that no crushing is required ahead of the raw mill. The pumice from inland deposits is passed through a hammermill. Major equipment consists of a 9- by 13-ft. raw preliminator, an 8½- by 10- by 7½- by 300-ft. kiln, a 3- by 50-ft. air-quenching clinker cooler, and an 8- by 29-ft. Compeb clinker mill. The company produced the aggregate and made the brick used in the construction of this plant.

CARIBBEAN

Cuba

The only cement plant in Cuba is that of La Compania Cubana de Cemento Portland, a Lone Star Cement Corporation subsidiary. This plant is located at Cayo Mason, Pinar de Rio, and has a capacity of 2,400,000 bbl. annually (1,000 metric tons daily). It is a wet process operation using F. L. Smidth equipment. Both standard and high-early-strength portland cements are manufactured.

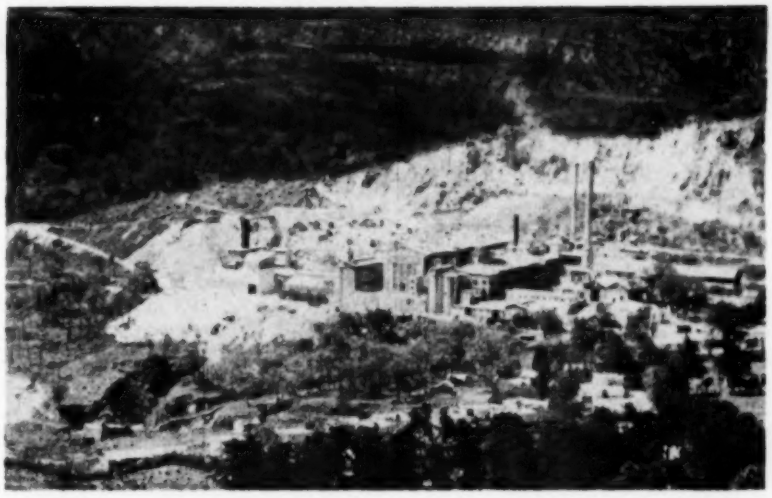
Dominican Republic

In 1952 the production of cement in the Dominican Republic was 137,257 metric tons, compared to 103,323 tons in 1951. No figures are available for imports in those years.

There is still only one cement plant in the Dominican Republic, that of Fabrica Dominicana de Cemento at Ciudad Trujillo, which started production late in 1947. The capacity of this plant was increased late in 1949. Only standard portland cement is made. It is an F. L. Smidth wet process plant with a capacity of 750 metric tons per day. Before this plant was built, all cement was imported, and imports reached a high of 51,802,924 kg. in 1947. In 1950, the latest figures available show imports of only 2,897,148 kg. compared to the domestic production of 71,501,086 kg.

Haiti

The only plant in Haiti is that of Le Ciment de Haiti, which is reported to have gone into operation recently. This 200-metric ton per day F. L. Smidth wet process plant is located near Port-au-Prince. Authorization to build this plant was granted in September, 1951, to an Italian company with the provision that it set up a Haitian corporation.



This 1400-bbl. per day plant of Cementos Novella, S. A. is the only one in Guatemala. The original plant at this location, built in 1897, had a small, home-made rotary kiln. The plant, which produces 1,400 bbl. per day, will be expanded in the near future. Lime is also produced at this site.

Jamaica

From all reports the entire needs of the island of Jamaica, British West Indies, are being met by the new plant of the Caribbean Cement Company Ltd., which went into operation in January, 1952. This 600,000 bbl. per year wet process operation is located at Rockfort, a suburb of Kingston, the capital city. It was completely described in the July, 1952 issue of PIT AND QUARRY.

Suitable deposits of raw materials were available, but the site for this plant was selected because it is close to the biggest market and because, being near tidewater, water shipments could be made to any desired points. Limestone is quarried on the property, clay is dredged from a nearby river and gypsum is purchased from a quarry just a few miles away. The company supplies its own power from a diesel generating station.

The plant was designed by F. L. Smidth & Co., which supplied the major equipment and supervised its erection and the construction of the plant.

Limestone is dumped from trucks into a feeder to the 60- by 70-in. hammermill from which it is conveyed to a silo. Clay is washed at the company's dock and pumped 500 ft. to silos. These two materials are ground in an 8- by 36-ft. 3-compartment Unidan mill, and the slurry is pumped to a basin and correcting silos.

The 10- by 300-ft. Unax kiln, which is oil fired, is equipped with a heat exchanging chain system. It is fully instrumented and has a capacity of 300 long tons of clinker per day. Clinker is discharged to a Folax grate cooler and is conveyed to storage. The climate makes open storage practical for stone, clinker, and gypsum, and all of these materials are handled by a rotating 7-ton jib crane. Clinker and gypsum are fed to a second 8- by 36-ft. 3-compartment Unidan mill. The finished cement is pumped by a Fluxo pneumatic system to the storage silos. Bagging is done at the rate of 70 t.p.h. by a Fluxo packer.

Trinidad

There is only one plant in Trinida, British West Indies, that of the Rugby Portland Cement Company at Morichal. This 300-metric ton plant uses F. L. Smidth equipment.

Mexican Cement Production Reaches All-time High

Mexico hit a new record in cement production for the first six months of this year, according to Federico Sanchez Fogarty, vice-president of the National Chamber of the Cement Industry. Actual production was 846,706 tons, or more than 44,000 tons over production during the half-year period in 1952.

Mexico is now in third place in Western Hemisphere production, only being exceeded by the United States and Canada. The industry will definitely hit an all-time record production this year, according to the industry's chamber.

At the end of the six months' period cement plants had a surplus of approximately 30,000 tons which is in contrast to the situation for the two six-month periods last year when practically all supplies had been used up.

New Law of Copyrights, Trade-Marks and Design Patents

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

RECENTLY on an extended Western trip the writer received quite a few inquiries from designers in the nonmetallic minerals field, both in small and larger plants, as to how their wares, such as imitation stone products and designs, may be either patented or copyrighted. One reader of PIT AND QUARRY asked: "Just what is a patent and what is a copyright? How much protection does each give, and what are other important details that I should know? Which gives inventors and designers the best protection — patents, copyrights, or trade-marks?"

Another reader asked: "Assuming that a manufacturer has no trade-mark, trade name, patent, or other registration, what chance has he to stop competitors, employees, and others from using his secret processes? What are the legal distinctions and differences between trade-marks and trade names? And are the laws and liabilities pertaining to trade-marks and trade names similar to those of unfair competition?"

It is important to know that one who manufactures or purchases a product which infringes a patent, a trade-mark, or a copyright cannot sell it without incurring heavy liability. Also, the owner of a patent can prevent all persons from making, selling, and using the patented device. This is the law, as laid down by the Supreme Court of the United States.

First, I shall review in detail a recently decided higher court case which clearly illustrates the rights and liabilities of employers, employes and competitors relative to secret processes, and faithful business dealings.

Modern higher courts consistently hold that the owner of a secret process has a legal right to expect that employees shall serve faithfully and guard secret processes against unauthorized use by competitors. In other words, the higher courts require that all employees are obligated to serve their employers faithfully, and not divulge trade secrets to a competing company. If an employee violates this rule, he must pay all back salary and all other compensation received from his employer. Another important point of law decided by a late higher court is as follows: A competitor who unfairly uses a trade secret is fully liable and must pay all its profits to the one whose trade secrets were utilized.

For illustration, in *A. Hollander & Son* v. *Imperial Corporation*, 66 Atl. (2d) 319, the testimony showed that one Singer owned and operated a business, but later went bankrupt. Soon afterward he went to work as manager of a certain corporation. He was paid a salary of $7,500 a year under a written contract which contained a clause that he would not divulge to any person any of his corporation's trade secrets or processes. Soon after taking the employment Singer secretly organized a competing company, the Imperial Corporation. Singer kept in telephone communication with the latter company but did not appear at its plant for fear of disclosing his interest to his employers.

Later the employing corporation sued both Singer and the Imperial Corporation, and asked the court to award it the profits earned by the latter company, and also to compel Singer to repay $15,000 in salary received for the two years during which time Imperial was in operation. The higher court held in favor of the corporation, and said:

"Singer is not entitled to retain the salary paid to him amounting to $15,000. These payments were made at a time when he was actively pursuing outside business activities contrary to the employment agreement."

Trade-Marks vs. Trade Names

Now I shall review the modern law upon new higher court decisions as to actual legal differences between copyrights, patents, trade-marks, and trade names.

Modern higher courts consistently hold that the distinction between a trade-mark and a trade name resides in the fact that a trade-mark is applied exclusively to merchandise or products, whereas a trade name is the name of a business, an individual, a partnership firm, or a corporation.

Considerable legal controversy has arisen from time to time over the legal question: "When and under what circumstances can a corporation, manufacturer, or the like prevent a competitor from adopting and using a similar trade name?" The answer is: Only when the older user adopted an original trade-name which does not contain the name of the state, county, city, or street where the business is located.

For example, in *Mann* v. *Parkway*, 85 N. E. (2d) 210, the testimony showed that in 1917 a company adopted a tradename in which was the word "Parkway." The business was on an avenue commonly known as the "Parkway." In 1946 another company opened a similar business using the word "Parkway" as part of its firm name.

The original user filed suit and asked the court to enjoin use of the name "Parkway" by the competitor. The higher court refused to issue the injunction, saying:

"Upon all the evidence, the word 'Parkway' had not acquired a secondary meaning as designating the plaintiff's place of business."

Distinctions Are Established

Readers should realize the legal distinction between trade-marks and trade names. Hence, it is well to explain that a trade-mark is intended to establish in the minds of the buying public the quality and kind of products or merchandise the mark represents. The trade-mark laws provide for registration in the United States patent office of any distinctive "name or symbol" of salable merchandise. Also, a trade-mark must be attached to merchandise, and most importantly the law requires that a new trade-mark must be different in all respects from marks previously used and registered. This assures the public that a new mark will not infringe the trade and good will of the original user of a similar trade-mark.

The higher courts hold that the original purpose of trade-mark laws was not only to protect manufacturers, buyers, sellers, and owners of trade-marks, but also to protect purchasers and consumers against deception and confusion. Hence, where the testimony shows that the public and purchasers of nonmetallic minerals products will not be deceived, two sellers or companies may use the identical trade-mark in different territories or areas if neither company practiced fraud. See *Western*, 149 Fed. (2d) 1019.

Trade-Mark Laws

The trade-mark laws provide for registration of any distinctive name or symbol, of a salable article, suf-

ficiently different in all respects from marks previously registered. This is required to assure that a new mark will not interfere with the trade and good will of the owners of other old marks. The fundamental reason for this law is to safeguard purchasers and the general public against being confused by similarity of old and new marks.

Since a trade-mark is intended to indicate the origin of merchandise or products, it is legally the exclusive property forever of the one who registers it. In the United States a trade-mark issues for 20 years, and it may be renewed indefinitely every 20 years. However, to acquire the right to the exclusive use of a trade-mark the applicant must show that the mark was adopted for the purpose of "identifying" the origin of his product and that the exclusive right to use the mark is founded on priority in interstate use. In other words, a trade-mark cannot be registered unless the mark has been used on merchandise or products shipped, mailed, or delivered from the applicant to persons who live in another state.

Of course, a trade-mark does not in any sense protect the applicant against infringement of the design or exterior appearance of his product. A trade-mark merely gives broad protection against a competitor's adopting and using a similar trade-mark, or name.

Considerable discussion has arisen from time to time over the legal question: "When is color a satisfactory element of a trade-mark?" The answer is: Only when it is used in combination with a design, a picture, or a geometrical figure.

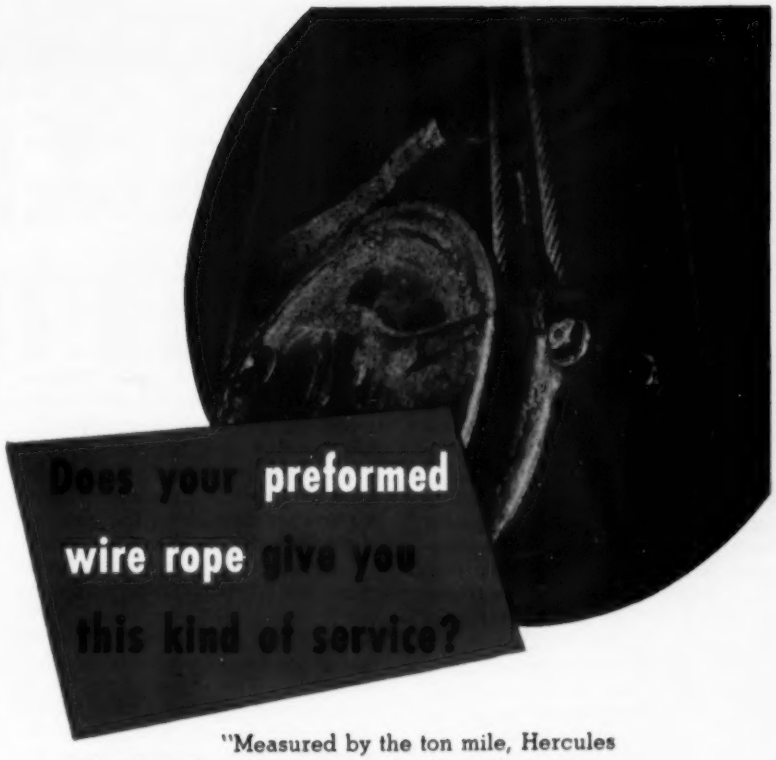
For illustration, in *Campbell v. Armour,* 175 Fed. (2d) 795, a company filed suit for damages and asked the court to grant an injunction to stop the use by a competitor of a red and white label used on some of its products.

The higher court refused to hold in favor of the company, saying:

"What the plaintiffs are really asking for, then, is a right to the exclusive use of labels which are half red and half white for products. If they may thus monopolize red in all of its shades, the next manufacturer may monopolize orange in all its shades, and the next yellow in the same way. Obviously the list of colors will soon run out. That a man cannot acquire a trade-mark by color alone has been stated a good many times in decisions."

How To Register Trade-Marks

Almost all firms and corporations and persons who obtain registration of trade-mark employ the services



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of a competent patent lawyer. A conservative fee, including all expenses, is $75 to $100. However, by following the rules laid down by the United States Patent Office, any person may himself register his trade-mark. Apply to the Commissioner of Patents, Washington, D. C., and request a booklet on how to register a trade-mark. From this booklet may be copied the petition, the statement, and the oath, all of which the applicant must sign, as directed. Also, a drawing must be made by an experienced artist on "trade-mark drawing paper", obtainable at a good stationery store. This drawing must be made in India ink, and it must show the exact duplication of the adopted trade-mark. It must be signed by the applicant or his patent lawyer. The drawing, petition, statement, and the oath, together with the required government fee, must be mailed to The Commissioner of Patents, Washington, D. C.

It is advisable to employ a good lawyer to file your trade-mark application, as many technicalities are involved, and an error may render the trade-mark void.

The law of filing applications for copyrights is relatively simple. Any person may obtain a registration of a copyright by addressing The Registrar of Copyrights, Library of Congress, Washington, D. C. Explain the work to be copyrighted, and descriptive literature will be mailed to you. By following the explanations therein you can, without much difficulty, file your copyright.

Law Of Design Patents

Modern higher courts consistently hold that design patents are a very important form of protection for the designer of nonmetallic minerals products. However, a design patent relates only to the exterior or ornamental appearance of the invention. The law prescribes that any person who has invented any new, original, and ornamental design for an article of manufacture" may obtain a patent for such design.

Recently a court, in deciding a design patent infringement litigation, said: "The essence of a design in the view of the patent law resides, not in the elements individually, nor in their method of arrangement, but in the impression made through the eye on the mind of the observer, of gracefulness or . . . of the uniqueness and character of the structure as a whole."

Therefore, design patents give protection on new style, creation, or design. It is very interesting to note that the courts have taken the attitude that to obtain a valid design patent, the same degree of the human inventive faculty need not be exercised as is required to obtain an Article of Manufacture or Process patent.

In the leading higher court design patent litigation, *White,* 209 F. 223, the court said:

"The policy which protects a design is akin to that which protects the works of an artist, a sculptor, or a photographer by copyright. It requires but little invention, in the sense above referred to, to paint a pleasing picture, and yet the picture is protected, because it exhibits the personal characteristics of the artist, and because it is his. So with a design. To produce a graceful pattern requires an exercise by the inventor of the 'intuitive faculty of the mind'. . . . A design patent necessarily must relate to subject matter comparatively trivial, and the courts have looked with greater leniency upon design patents than patents for other inventions. The object of the law is to encourage those who have the industry and genius to originate objects which give pleasure through the sense of sight. It is the appearance itself, therefore, no matter by what agency caused, that constitutes mainly, if not entirely, the contribution to the public which the law deems worthy of recompense. The appearance may be the result of peculiarity of configuration, or of ornament alone, or of both conjointly."

To obtain a valid design patent, it is not required that all of the parts of the design be new or novel. For illustration, recently a court in effect held that if the design as a whole is new, a valid patent may be obtained. Another court said:

"A patent design must be viewed and considered as a whole, and originality and novelty will not be denied it because elements or component parts of the design are old, if as a whole it produces a new and pleasing impression on the aesthetic sense."

According to a late higher court decision, the test of infringement of two designs is relatively easily made. A recent higher court explained that the legal rule for deciding whether or not one design infringed another, is to place the two designs side by side, and if they look alike, infringement exists.

In another case (158 Fed. 305) where the same point of the law was involved, the court said:

"The object in a design patent is not to identify the article as an article of trade, but to ornament it, so as to make it pleasing to the eye. . . . The test of infringement is not whether an ordinary purchaser might be deceived into buying one article for another, but the sameness of appearance which constitutes 'infringement' is the sameness of aesthetic effect on the eye of an ordinary observer."

Copyright vs. Design Patent

The same law applicable to deciding whether a design patent is infringed is applicable to copyrights. In fact the higher courts very consistently hold that copyrights give practically the same protection against infringement as do design patents. Recently a higher court held that the "dividing line" or distinction between design patents and copyrights on artistic nonmetallic products is almost indiscernible. In fact, some inventors of new and ornamental designs obtain both a design patent and a copyright. However, the copyright laws are intended to give protection to the designers of works of the "fine arts", which include paintings, drawings, sculptures, compositions, designs of nonmetallic products and the like.

It has been held that a design patent is infringed if the competitor's product "looks like" the patented design. However, this is not so with respect to copyrights.

Infringement of a copyright must be connected with the actual copying of the copyrighted work. If, for example, two persons design exactly the same work of art independently of each other, neither is liable for infringement of the copyright owned by the other.

This law may seem to be unfair and unreasonable to many readers. However, copyright laws are intended to prevent copying and do not curtail originality.

Obviously, however, any person may be liable for copying another person's copyrighted work from memory the same as if the copyrighted work, design, or the like were directly copied. Therefore, in many suits the important testimony is: Did the person accused of infringement see the copyrighted work? If so, he had an opportunity to copy it, and the court may hold him liable.

For illustration, in *Edwards,* 15 F. (2d) 35, the higher court said that if the thing covered by a copyright has become familiar to one's eye, and he produces it from memory, he copies just the same, and "this may be done without conscious plagiarism".

In other words, if testimony is given that the one accused of infringing a copyrighted work has at

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some time in the past seen the work, the court may decide that without being conscious of copying, yet he is guilty, because, having previously seen the copyrighted work, his subconscious mind automatically and unintentionally reproduced to a degree the thing he had seen before.

Frequently it is impossible for the owner of a copyright to prove that a competitor or another person actually copied his work of art, or his design for nonmetallic products. Therefore, it is interesting to know that in many cases the higher courts have held that if common errors or peculiarities found in the original are also found in the alleged infringement, this is sufficient evidence of copying to justify a judgment in favor of the copyright being infringed.

Not Infringement

According to a recent higher court merely copying a nonmetallic article or a design unprotected by a patent, a copyright or a trade-mark is not "unfair competition".

See *Airolite Company v. Fiedler*, 147 Fed. (2d) 496. Here it was shown that one Fiedler was sued for unfair competition because he copied and used a competitor's uncopyrighted drawings and plans. The court said:

"Unfair competition was not shown merely by the copying of the uncopyrighted drawings the plaintiffs (Airolite Company) had made but had not exclusive rights to use."

Practically the same law is applicable to trademarks. For example, in *Barre Granite Assn. v. Fasolino Monuments Company*, 75 Fed. Supp. 50, it was shown that a company is the owner of the registered trade-mark "Barre Guild", used on monuments of Barre granite, quarried and manufactured at Barre, Vt.

Suit was filed against a competitor, charging infringement of this trade-mark. The court enjoined the latter company from infringing the trade-mark "Barre Guild", and ordered it to remove the trade-mark from all monuments.

Afterward the competitor changed the legends on monuments to read "Barre Granite" instead of "Barre Guild". The higher court held that the competitor could use its new trade-mark. This is so as "Barre" is a location from which granite is quarried; no company or person has the exclusive right to the use of this word in its trade-mark or trade name.

Law Of Patents

Many persons spend money to obtain patents on their inventions, only to find that no patent can be obtained, or that after the patent is allowed, it is invalid and worthless. Therefore, it is important to know that a review of higher court decisions discloses that the following things are not patentable: a mere idea without mechanical means to carry out the practicability of the idea; a principle known to science; a mere result; a property of matter; an aggregation of old parts which do not act together to produce a unitary result; a system for doing something; things having an immoral object; things created by "mechanical skill", which do not require inventive ability to perfect; all devices that are inoperative; and all devices that are not new and useful; and all other things which have been described in any publication.

Many persons believe that once they receive a patent from the United States Patent Office, they are secure and fully protected. However, this is not so. The fact that an inventor is granted a patent means only that a patent examiner believed that the inventor deserved a patent. However, if any time later it is proved that the examiner was in error, the inventor may have to forfeit his patent. See *Owens v. Bell Company*, 143 Fed. (2d) 115, where an inventor forfeited his patent because

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6. **NEW LUBRICANT** for open gears and cables, Tenac, a free-flowing, fast-setting, highly-adhesive black lubricant applied by spray, brush or swab, is described in this 4-page *Houghton* folder.

7. **NEW POWER CONTROL UNIT** for tractors, the PCU-75 features a new multiple-disc clutch, simplified brakes, adjustable hand levers, and handles 225-ft. of ⅛-in. cable, this *Baker Mfg. Co.* folder shows.

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9. **ARC WELDING MACHINES** are featured in this new 44-page *Airco* catalog, showing over 20 different models of AC, DC and inert-gas models, plus data on accessories and electrodes.

10. **HEAVY MEDIA SEPARATION** for recovering valuable minerals from low-grade deposits has grown by leaps and bounds, the Mineral Dressing Division of *American Cyanamid* reports in this interesting 32-page report on HMS and how it is used to recover ores and non-metallic minerals around the world.

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14. **BUYING INFORMATION,** including recent price cuts, feature this special condensed catalog and price list of the cemented carbide tools and blanks made by the *Carboloy Dept.* of GE.

15. **HARD-FACING,** its application and wear resisting qualities are studied in this 52-page brochure published by *Mir-O-Col Alloy Co.* Instructions and the latest data are included.

16. **OVERLOAD PROTECTION** for a variety of machinery drives is provided by the new line of torque-limiting slip-type 4⅛, 5⅛ and 6½-in. diameter adjustable friction clutches, described in this *Morse Chain* data sheet.

17. **AGGREGATE PRODUCERS** will be interested in a new 20-page bulletin on the *Wemco* S-H Classifier, which includes useful operating notes, calculations used in wet classification processing, and handy reference tables listing classifier specifications and capacities.

18. **GUIDE TO WIRE ROPE** selection is offered in this *Bergen Wire Rope Co.* folder, which includes among other things the "Ten Commandments for the Care of Wire Rope".

19. **SAND PRODUCERS** have a new tool, the DorrClone, this bulletin says, describing this cylindro-conical classification unit that uses centrifugal force instead of gravity, introduced to the USA by *Dorr Co.* a short time ago.

20. **PROPORTIONING** formulated mixes of bulk products is described in this 6-page bulletin on the electronically-controlled Select-O-Weigh system, *Richardson Scale Co.'s* most recent development.

21. **STOP BELT SLIPPAGE** wherever transmission belting is used with the liquid treatment *Beltraction,* this leaflet advises. The substance is said to keep belts clean of foreign materials, and waterproof, oil-proof and weatherproof them.

22. **VALVE BAG PACKER** and bag settler that has many attractive features is described in this folder on the *Black* Diamond, an electrically-driven 800-lb. unit. Patent applications are pending on several of its features.

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24. MAGNETOS and what they can do for you are described in this 24-page *Wico Electric* brochure. This type of ignition system has certain qualities "which make its use almost imperative on equipment that must be ready for instant use, under any condition, or equipment which must operate continuously over long periods of time. . . ."

25. TECHNICAL BELTING MANUAL covering 48-pages of information on transmission, conveyor and elevator beltings has been issued by the *Boston Woven Hose & Rubber Co.*

26. FROTH FLOTATION, which has applications in the recovery of various fines in our field, is discussed in this *Denver Equipment Co.* bulletin, written by L. A. Roe, of the research division of Jones & Laughlin Steel Co.

27. "MANAGEMENTS WITH VISION" get a proposal in this brochure from *CDC Control Services,* a unique engineering service that is devoted to making plant operations automatic.

28. BULK TRANSPORT BODIES, truck or trailer-type, for carrying lime, rock phosphate, etc., are shown in this *Baughman* brochure. The bodies have a self-unloading feature.

29. SOIL TESTING APPARATUS fills this 72-page catalog from *Soiltest, Inc.* Both laboratory and field testing equipment for soils, asphalt, concrete, etc. is shown in what is believed to be the first such catalog for the new science of soil mechanics.

30. HARDFACING ALLOY. *Colmonoy #6,* a versatile, all-purpose alloy that may be applied by oxy-acetylene or electric arc, hot formed as an overlay, applied in the form of castings, or sprayed on, is discussed in this pamphlet.

31. V-BELT DATA fills this catalog of the *Durkee-Atwood* line. Charts, tables, and the new Rubber Mfgrs. Asrn. horsepower ratings are included.

32. PLATE MAGNETS of the non-electric variety, for chutes, feeders and conveyors are featured in this 6-page bulletin on the *Memco Alnico* permanent magnets, 4-in. to 4-ft. wide.

33. VENTILATION in mine and tunnel with the Spiratube-M and Ayrtube, made by *Flexible Tubing Corp.* is discussed in this 8-page brochure.

34. CONTROL INSTRUMENTS made by *Minneapolis-Honeywell* for all sorts of industrial uses are shown in this 24-page catalog.

35. PUMP MOTORS of the hollow and solid shaft vertical types feature this new *Louis Allis* bulletin.

36. SAFETY EQUIPMENT of all types is shown in a new catalog issued by *Parker Safety Equipment Co.*

37. "CUT PRODUCTION COSTS with electronic controls—this 'bible' tells you how", Photoswitch says, announcing the revision of its handbook.

38. ADJUSTABLE VOLTAGE DRIVES, packaged for easy installation where variable speeds are needed, are shown in this 16-page *Westinghouse* booklet.

39. MAINTENANCE tools of many sorts for both plant and garage use are shown in this 40-page catalog of *Thor* portable electric power tools.

40. PACKINGS, their installation and care, is discussed in this 112-page booklet issued by the mechanical rubber goods division of *U. S. Rubber.* Several tables and charts are included.

41. SMALL MOTOR SERVICE is offered motor users under a new plan described in this 4-page *General Electric* bulletin which explains the types of service provided, warranties, and the fhp motor factory repair service, and lists the 127 authorized service stations in the US and Canada.

42. APPLICATIONS FOR MANGANAL welding products in mine and quarry are illustrated in this issue of the *Manganal Marketer.*

43. CONTROLLED VOLUME PUMPS made by *Milton Roy Co.* are shown in this 40-page bulletin replete with technical data, charts, etc. Designed for precise pumping, some of these units pump as high as 45 gpm, others as low as 3 ml. per hour.

44. HARD-SURFACING HANDBOOK, The *Lincoln* Weldirectory, has been issued in a new edition. This 20-page bulletin is filled with drawings, charts and data on hard-surfacing, has a preface on arc welding and an entirely new guide chart.

45. SPEED CONTROL to provide any driven machine with the exact speed for each operation is discussed in this bulletin showing the features of *Reeves* Speed Control.

46. SAFE PRACTICES for all workers are outlined in "Working Together For Safety", a new manual issued by *National Safety Council.* The 32-page booklet is filled with applied common sense—safe work habits for any worker.

47. VERTICAL TURBINE PUMPS made by *Worthington* are featured in a new bulletin. Long considered to be just a deepwell pump, verticals are now found to have many other uses the bulletin shows.

48. HIGH-SPEED EARTHMOVING with the *Caterpillar* DW10 wheel-type tractor is illustrated in this recent bulletin. The versatility of the DW10 for hauling various equipment is stressed.

49. ROLLER CHAIN and sprocket data fills this 24-page *Dodge Mfg. Co.* catalog on its Taper-Lock sprockets and related items.

50. "THE RIGHT SCRAPER for every tractor and every job" is offered by Allis-Chalmers in this new 12-page catalog of its 7 pull-type scrapers (3 of them Gar Wood units). Struck capacities range from 2 to 18 cu. yd.

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another inventor proved that he was first to conceive, perfect, and put the invention to practical usage, although another inventor was the first to file an application and receive a patent.

A patent issues for 17 years, and no patent will ever be issued on an invention unless it is new, and produces new and useful results.

Cannot Use Own Name

Many higher courts have refused to allow persons to use their own names, in advertising patented products.

In *S. M. Spencer Mfg. Company vs. Spencer,* 66 N. E. (2d) 19, the testimony showed that a man named Spencer for about 20 years or more had been employed by the Spencer Manufacturing Company. Spencer began a competitive business under his own name.

The Spencer Manufacturing Company filed suit and the lower court ordered Spencer to discontinue his trade name within a quarter mile of the company's location.

The higher court modified the decision and held that Spencer should not have been enjoined from unrestricted use of the name "Spencer", within one-quarter mile of the company's place of business, but he should have been enjoined from such use in the entire city.

Thus, in cases where a person's own name is likely to confuse the public, it can be used only under circumstances that will not interfere with the "good will" of the original user.

For comparison, see *Katz Drug Company v. Katz,* 217 S. W. (2d) 286. Here the testimony showed facts, as follows: In 1915 brothers named Isaac and Michael Katz founded a corporation. From the very beginning they used the name Katz Company, and the name "Katz" was distinctively printed.

A man named Jerry Katz opened a new business near the Katz Company's location. On the front of the building he had painted the name "Katz" in distinctive script.

The Katz Company filed suit and asked the court to grant an injunction prohibiting Jerry Katz from using his own name in this manner. The higher court granted the injunction, saying:

"Under present general law, the use of another's mark or name, even in a noncompetitive field, where the object of the user is to trade on the other's reputation and good will, or where that necessarily will be the result, may constitute unfair competition."

Proper Loading Cuts Conveyor Belt Wear

INCREASED service life and decreased maintenance cost are dividends that result from investing proper care in belting used on conveyor installations. Thermoid Company, Trenton, N. J., manufacturer of conveyor belting, recently completed a study of factors contributing to excessive wear. Under the direction of Newell Perry, belting engineer, the study singled out loading conditions as a prime factor in belting deterioration.

The loading point is a danger zone. Both existing and proposed installations should be regarded with the intention of creating "ideal" loading conditions.

One of the basic requirements for low-rate belt wear is to see that material loads the belt while moving in the same direction and at the same speed as the belt. Where this requirement has not been satisfied, installations have shown excessive belt wear due to abrasion created at the loading point.

When lumpy material is being carried, an attempt should be made to have such material cushioned by a prelaid layer of fines. A screen or "grizzly" at the bottom of the loading chute or, in some instances, an oval or "fishtail" notch cut in the lip of the chute will satisfactorily deposit a layer of fines over the belting, thus providing protection against bruising.

At the same time, the velocity of loading-material flow should be controlled by pitching the loading chute properly. If this is not feasible, a baffle of iron or wooden bars should be constructed in the chute so as to reduce the speed of material flow onto the belt. However, the minimum rate of this flow should still be sufficient to maintain delivery of the desired volume.

In like manner, falling distance between chute and belting should be minimized to prevent excessive speed of material-flow which, in the case of lumpy material, might be great enough to cause belt damage.

In no instance should material strike the belt directly above a solid pulley because the resulting hammer-anvil action will quickly render the belting unusable. The chute should be located so that material will strike the belt between idlers. However, in cases where heavy material is being loaded, it may be necessary to load directly over rubber-covered idlers.

In some cases the impact of the load between idlers will set up belt vibration. Resultant chattering may depress the belt sufficiently to allow material to escape under the skirtboards. This may be prevented by locating the chute so that loading material will strike the belt far enough ahead of the tail pulley to allow insertion of at least one belt-steadying carrier pulley. Also, carrier pulleys should be more closely spaced around the loading zone because of the impact loading at that point.

Construction of loading chute skirt-boards and flexible skirts should be carefully considered. Skirt-boards should be long enough to settle the material before it leaves the loading area. Flexible skirts are preferably improvised from rubber-covered edges of belting remnant. These remnants should be placed so that the rubber-covered edge contacts the belting. Should this be reversed, and the exposed-fabric edge of belt remnant be placed against the moving belt, grit will collect in the fabric. Resultant abrasive action of the flexible skirt will in time wear a track through the belt cover.

Vertical spacing between chute skirt-boards and belt increases toward the open end of the chute. Thus the width of flexible skirts, as cut from a belt remnant, should increase toward one end. This construction allows uniform contract between the flexible skirt and belt over the entire length of the chute skirt, and minimizes spillage around the loading point. At the same time, wedged-in lumps of material can be worked free by the forward motion of belting.

Summarizing, the life of conveyor belting depends upon these five important conditions of loading:

1. Loading material should discharge at the same speed and in the same direction as that of belt movement.

2. Lumpy material should be cushioned on belting by a prelaid layer of fines.

3. Chute discharge should strike between closely-spaced carrier pulleys or, where heavy material is encountered, should strike directly over rubber-covered or pneumatic idlers.

4. Falling distance from chute to belting as well as discharge velocity of material, should be minimized.

5. Chute construction should be such as to settle the load properly without allowing spillage or jamming of material around the chute outlet.

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

When Congress finally went home, the executive branch of the government acted as if had taken off its "hair shirt." Not only the President but many bureau heads and other officials left town to recuperate.

Most of the business men that the new Administration brought to Washington had had no previous political experience. Their first tug-of-war with Congress is an experience which they will not soon forget.

As its final action, Congress "slapped-down" Secretary of the Treasury Humphrey by refusing to grant his request for an increase in the debt limit. The logical dollars and cents reasoning which Secretary Humphrey, an eminently successful business man, must have used many times to convince boards of directors failed to make any dent on a Congress which, in its rush to go home, was unwilling to face up to an unpleasant economic "fact of life."

Earlier, Congress failed to heed the suggestions of Postmaster General Summerfield who wants to run the post office on a business basis. His request for higher postal rates so that the post office could at least break even got nothing more than the cold shoulder.

Still earlier, Secretary of Agriculture Benson got himself into the deepest kind of difficulty, particularly with Congressmen from farm states, with his suggestion that the farm subsidy program was pretty unbusinesslike. And Defense Secretary Wilson's "bloomer", which almost prevented him from being confirmed for the post, marked the low point in understanding between the politically-oriented Congressmen and the new type of business-oriented government official.

The President, himself, did not lack for trouble with Congress. To succeed on the very obvious principle that a government which is already operating "in the red" should not cut taxes, thereby driving it further into the red, he had to, literally, go over the head of the recalcitrant Representative Reed. Even after using all of his power, prestige, and popularity, the outcome of the fight over continuing the excess profits tax was in considerable doubt for some time. Even now, Eisenhower's principle of balancing the budget first and then cutting taxes has not been generally accepted by Congress.

It is generally agreed that even the modest success which the Administration has had in getting its programs through Congress would not have been achieved except for:

1. The assistance of the Democrats on many important measures, and
2. The superlatively skillful leadership furnished by the late Senator Taft in the Senate and Representative Martin in the house of Representatives.

Much domestic legislation, such as reduced appropriations, ending the Reconstruction Finance Corporation, reducing or eliminating public power projects, and even tidelands oil, might not have passed without the active support of many conservative Democrats. Similarly, on foreign policy legislation, the Administration would have been thoroughly defeated by its own right-wing Congressmen if the Democrats had not joined forces with the liberal Republicans.

In the next session of Congress it is likely that similar conditions will again be formed. But, regrettably, the untimely passing of Senator Taft finds no substitute fully able to fill the gap. The principal Republican loss in the Senate is not that its always narrow majority may be further reduced because Senator Taft's successor is likely to be a Democrat. Far greater is the loss of their most knowledgeable member, the rare product of a lifetime of experience in political matters. It is being said around Washington that the Republicans could have better afforded to lose a half-dozen Senate seats than one Taft.

With less than the strongest kind of leadership, the prediction is that, in the next session, the Republican side of the Senate will be going in all directions at once. The Democrats see this as their opportunity to make real political progress. There is talk about a strategy whereby the Democrats will withhold support on vital administration measures until the last minute, particularly if the measure looks like one that will be lost without them. When it is clear to the voting public that the Democrats, and only the Democrats, can save it, then they will deliver their votes as dramatically as possible. The theory is that if in the 1954 elections the voters become convinced that the wishes of the popular President Eisenhower can only be fulfilled by Democratic congressmen, the voters will elect such congressmen to office.

The place where this strategy, if tried, would work most successfully would probably be the farm areas. These are the areas which have thus far suffered the most severe economic reverses. The only hope of the Republicans is to adopt New Deal type farm programs—high price supports. Democrats, trying to unseat Republicans elected in the Eisenhower sweep of the farm belts, will not fail to point this out.

In many government departments, the period between now and next January, when Congress reconvenes, will be utilized not only to put their houses in order but also in an intensive study of "the care and feeding of Congressmen."

Oregon Geology Department Issues Two New Bulletins

Geology of the Albany Quadrangle, Oregon is the title of Bulletin No. 37 just issued by the State Department of Geology and Mineral Industries of Oregon. Dr. Ira S. Allison, chairman, Department of Geology, Oregon State College, is author of the bulletin, which has 18 pages and a colored geologic map.

The Albany 15-minute quadrangle is in the center of the Willamette Valley and occupies the northwest corner of Linn County and the northeast corner of Benton County. Sections of the bulletin are devoted to stratigraphy, structural and economic geology, and geologic history of the area. A bibliography is included.

Also available is a new bibliography of the geology and mineral resources of Oregon, issued by the Oregon State Department of Geology and Mineral Industries as Bulletin No. 44. This bulletin is the second supplement of the original bibliography issued by the State Planning Board in 1936. The first supplement covering the succeeding ten years through the year 1945 was issued by the Department in 1946. Bulletin No. 44 covers the five-year period from January 1, 1946, through December 31, 1950.

The bibliography, consisting of 61 pages, is made up both of an author and a subject index.

Both Bulletin 37 and the bibliography may be obtained from the Portland office of the State Department of Geology and Mineral Industries in the State Office Building, Portland, Oreg., or at department field offices in Baker and Grants Pass. Prices: Bulletin 37, 75 cents per copy; Bulletin 44, $1 per copy.

TOUGH TEST for a scraper

Stripping dry, very hard clay overburden is a severe test of a scraper. When it can haul 1,000 yards in an eight-hour day with a 2,400-foot round trip, it has passed the test with flying colors. That's the record of this Caterpillar No. 80 Scraper and D8 Tractor, stripping overburden from red firebrick clay near Ione, Calif. They are owned by John Pedro of Stockton.

Mr. Pedro has standardized on Caterpillar equipment, with five D8 Tractors, three No. 80 Scrapers, a Motor Grader, Ripper and two stationary Cat* Diesel Engines. "I've owned Caterpillar equipment for about 18 years," he says. "I'm always able to get parts and service, and have had very little down time. If I were to buy more machines tomorrow, I'd make them Caterpillar-built units."

Mr. Pedro reports that his No. 80 Scraper is push-loaded full of hard clay in about 45 seconds, and unloads in about 10! The burly No. 80 hauls a heaped load of 20 yards. Being cable operated, it loads smoothly, and can pump "dead" material. And it unloads quickly and evenly with positive, fast-responding ejection.

Like all Cat equipment, the No. 80 is built to stay on the job and out of the repair shop. Good design, rugged construction and high tensile steels give it the ability to earn its keep for years to come.

Your Caterpillar Dealer will gladly demonstrate, *on the job,* the Cat Scraper that fits *your* needs. He stands back of the machine he sells with factory-supervised service and a big parts stock. Call him today.

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personal mention

President Jackson Martindell of the American Institute of Management has announced the election to associate membership of GORDON TONGUE, president of the Northwest Portland Cement Co.

L. H. OPPENHEIM has been named a vice president of the Henry J. Kaiser Company, parent company of the Kaiser group of industries. He will continue to serve as assistant general manager of Kaiser Engineers, a Kaiser division.

FRANK J. CORNYN, manager, advertising sales service, PIT AND QUARRY, is a director and chairman of the Chicago T.F. club's membership committee. This organization, comprised of advertising executives, also has chapters in Cleveland and New York.

HOWARD P. EELLS, JR., president of Basic Refractories Incorporated who conceived and founded Basic Magnesium, Inc., at Henderson, Nev., was awarded an honorary Doctor of Laws degree during June graduation exercises at the University of Nevada.

Mr. Eells, who resides in Cleveland, began his career in the accounting department of Dolomite Products Company in 1916. He worked his way up to the vice-presidency, general managership, and finally presidency of Basic Refractories Incorporated.

Mr. Eells, in addition to being a business executive, financier, and industrialist, is a trustee of the Cleveland School of Art and prominent civic leader.

DUANE BRYAN has been appointed assistant to the president, according to an announcement released by Edward O. Earl, president of the San Xavier Rock and Sand Company and San Xavier Materials, Inc., Tucson, Ariz.

Mr. Bryan's assignment makes him directly responsible to Mr. Earl. He will be in charge of the supervision and management of block and ready-mix production for the San Xavier Rock and Sand Company. In addition he will supervise the office and the sales and service operations of San Xavier Materials.

C. J. DUNHAM has been appointed merchandising manager and general staff assistant to the vice president in charge of sales of the Ruberoid Company, manufacturer of asphalt roofing and asbestos-cement building products. J. MAURICE HOARE has been named sales promotion manager.

Research engineer, CHARLES E. GREENLEE has been named assistant to the vice president of sales at Basic Refractories, Inc., Cleveland. For the past three years, Mr. Greenlee has specialized in mineralogical studies of dead burned dolomite, dead burned magnesite, and other granular-type refractories produced by Basic. In his new position he will assist in development projects for new applications of the basic granular refractories being produced at the company's Gabbs, Nevada, and Maple Grove, Ohio, plants.

A native of Ohio, Mr. Greenlee served for three years to 1945 in the U. S. Air Force. He graduated from Ohio State University in 1950 with his degree as Metallurgical Engineer.

President of Volunteer Portland Cement Company, Knoxville, Tenn., J. Ross HANAHAN, now 84, has received an honorary degree at graduation ceremonies of Clemson College in South Carolina. Mr. Hanahan is also president of the Planters Fertilizer and Phosphate Cement Co.

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J. E. Doane

Calaveras Cement Company recently announced the appointment of JOHN E. DOANE as assistant sales manager. Mr. Doane has been traffic manager for Calaveras since July, 1949. He joined the company in January, 1948, upon completion of military duties as navigator and transportation officer in the United States Army Air Force.

Mr. Doane will continue as traffic manager in his new capacity. He will serve under Mel J. London, vice-president and general sales manager.

Vice-president JOHN C. BEST of National Gypsum Company, Buffalo, N. Y., has been elected to the Board of the American Arbitration Association.

The appointment as director of the La Salle National Bank of ROBERT P. RESCH, vice-president and treasurer of International Minerals and Chemical Corporation, Chicago, has recently been announced. Mr. Resch has been with International Minerals for 31 years and is still serving in an executive capacity for 14 affiliates of the corporation.

ERNEST MUEHLECK, president of Keasbey and Mattison Company, has been elected president of Asbestos-Cement Products Association.

VICTOR DYKES, president of the Texas Fund, Houston, which has assets totaling $13,000,000, has been made president of Texas International Sulphur Company. This company, which has extensive sulphur leases in the Los Angeles area and southern California, plans to offer 500,000 shares of stock in the near future. Mr. Dykes was in the mutual fund field in Boston for 15 years.

The National Association of Cost Accountants announces the election of WALTER E. RHODE, chief accountant of Ideal Cement Company, Denver, as president of its Denver Chapter.

According to George Skakel Jr., president of Great Lakes Carbon Corporation, New York, MANLY B. BROWN will now head the company's Chicago offices as vice president in charge of marketing. Mr. Brown was sales manager of the pipe division of Republic Steel Corporation, Cleveland, for 13 years.

Claude E. Harper, vice-president and general manager of Kaiser Gypsum Company, has announced that the new assistant general sales manager for the company is ROBERT A. COSTA, formerly administrative assistant to the chief engineer of Arabian American Oil. He is a graduate of the University of San Francisco and a Navy veteran.

9 Ways to reduce your refractory waste

Plibrico materials, construction methods and engineering skill combine to offer you *nine* easy ways to get the most out of refractory linings. Here's how Plibrico services can help solve refractory problems in dust chambers, tail rings, firing hoods, clinker coolers, flues, breechings, waste-heat boilers, stacks:

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2. Through rock-steady anchorage . . . which prevents bulging and collapse.
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5. Through resisting abrasion damage . . . by selection of the right refractory material for the job.
6. Through uniform product quality . . . assured by constant laboratory control.
7. Through creative engineering . . . which overcomes specific job problems.
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9. Through complete service . . . that avoids the hazards of divided responsibility.

For detailed explanation of these nine money-saving Plibrico advantages, write or call us for our booklet "9 Ways to Reduce Your Waste." We'll send it by return mail.

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Record Maker Conveyor Belting will handle nine out of ten jobs—better!

This Republic belting, the workhorse of industry, is designed for heavy service and severe operating conditions. On the majority of conveyors, it provides long, economical performance.

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N. F. Meredith

NEIL FRANKLIN MEREDITH has joined Basic Refractories Incorporated of Cleveland, Ohio, as technical assistant to Dr. Max Muller, vice-president in charge of operations and engineering, H. P. Eells, Jr., president, announced recently. Mr. Meredith was formerly ceramic engineer for the AC Spark Plug Division of General Motors Corporation, starting with General Motors as laboratory assistant in 1941. A veteran of World War II, Mr. Meredith studied at Flint Junior College, Ohio State University, and Massachusetts Institute of Technology.

National Gypsum Company has announced the appointment of C. GUSTAVUS to the newly created position of division manager of the Southwest. The new division is composed of the Houston, Dallas, Kansas City, and St. Louis sales districts, together with the recently organized New Orleans sales district.

Formerly director of trade relations in the Southwest, Mr. Gustavus has been with National Gypsum since 1942, first as a general line salesman, then as commodity manager and district manager.

Another National Gypsum Company promotion was that of MELVIN F. CERRUTI, who assumed the newly created position of Northeastern Division manager. The new division will include the sales districts of Boston, New York, Garwood, Philadelphia, and Washington, D. C.

Mr. Cerruti was formerly district manager in New York. In 1952 under his jurisdiction, this district (composed of the present New York and Garwood districts) realized the greatest volume of sales dollarwise of the company's sales districts. He is a member of the Trailblazer Club, a group of National Gypsum's employees who have served for 25 years or more with the company.

New vice-president of The Ruberoid Company, New York, is WILLIAM J. VAN AKIN. Mr. Van Akin has been with the company since 1948 and was formerly vice president of The Flintkote Company. Ruberoid produces asbestos-cement building products and asphalt roofing.

AUGUST (AUGIE) RUMP is United States Gypsum's new Chicago man to assist their vice president in charge of operations, EDWARD REMBERT. Mr. Rump has just spent a year managing the company's New Brighton, N. J. plant. He has been with United States Gypsum since 1939. Also appointed to the Chicago office is HOMER R. DEADMAN as advertising manager who succeeds B. G. POMFRET, now head of the company's publication department. F. W. WEISER, formerly head of publication, will be eastern sales manager of the gypsum wallboard department, Chicago.

C. D. Rugen and R. B. Jordan

Two appointments in the engineering department of Universal Atlas Cement Company, U. S. Steel Corporation subsidiary, were announced by Raymond L. Walsh, chief engineer.

CHESTER D. RUGEN, projects engineer, has been appointed assistant chief engineer, and ROBERT B. JORDAN, assistant chief construction engineer at U. S. Steel's Fairless Works in Morrisville, Pa., has also been appointed assistant chief engineer for the cement company.

Mr. Rugen joined the engineering department of Universal Atlas in 1930. He became operating engineer in 1942 and returned to the engineering department as projects engineer in 1947. He has worked in all of the company's plants and has specialized in the performance, application and design of plant machinery and equipment.

Mr. Jordan first worked for the U. S. Steel in the construction engineering department in Chicago in 1937. In 1946 he was promoted to assistant chief construction engineer. He became the assistant chief design engineer in 1951 and later in the same year he was appointed assistant chief construction engineer.

U. S. Gypsum Company announces the new duties of two members of their Chicago staff. ERNEST A. KLEIN is now manager of roof decks and acoustical sales in the industrial division, and JOHN R. WALTMAN will manage the western industrial district.

DR. JACOB O. KAMM, economist, author, and teacher, formerly of Baldwin-Wallace College and Ohio State University, will assume the title of vice president of Cleveland Quarries Company, it was announced recently by William M. Jones, president. Mr. Kamm had served on the board of directors for some time and is also a director of the Kelley Island Lime & Transport Company. In his new post he expects to continue lectures on finance and economic subjects and to handle special financial work.

National Gypsum Company has announced the opening of a New Orleans district sales office under the managership of FRANK B. PHILLIPS, JR. This office will cover southern Mississippi as well as Louisiana.

Mr. Phillips, the new district sales manager, has been with National Gypsum since 1946, first as a general line salesman, then as assistant district manager in Houston, Texas.

FERTL-SOIL Reports:

"WE SAVED $5200 LAST YEAR BY ELIMINATING TRAMP IRON"

Eriez Magnetic Pulley Removes Up to 25 lbs. of Tramp Iron from Each Ton of Fertilizer

"An Eriez Magnetic Pulley, installed on a conveyor belt ahead of our milling and grinding equipment last year saved our company over $5200," reports James Smith, of the Fertl-Soil Company, Rahway, N. J. "By removing 25 pounds of nails, small bolts, nuts and other tramp iron (see insert) from each ton of fertilizer being processed, the Pulley saved over $1000 in preventing machinery damage, and saved $4200 in downtime! Customer goodwill has also been greatly strengthened because we know that our fertilizer is delivered free of *all* tramp iron. Our company used mechanical separating devices in the past, but the Eriez Pulley has proved to be the most positive and satisfactory means of eliminating ferrous contamination from our products."

Eriez Magnetic Pulley attracts, holds and automatically removes tramp iron from belt-conveyed material. Non-magnetic material falls free by gravity at its natural tangent point. Iron and steel, however, are held firm until carried out of the pulley's magnetic field beyond a divider where they fall off the belt into a container.

Only the ERIEZ Line of Patented Pulleys has ALL These Features:

1. New Indiana Hyflux Alnico V gives Eriez pulleys more pulling power than ever before.
2. Stressed skin construction assures greater durability in service.
3. No heavy internal spokes, cast iron, etc., to increase weight and bleed away strength.
4. End caps and internal supporting structure are non-magnetic . . . ferrous particles can't collect to cause bearing wear.
5. 68 standard sizes with capacities from 250 to 18,600 cu. ft. per hour are available for quick delivery.

Write for FREE 16-page Catalog 15 which describes 25 different Magnetic Separators for the chemical industry.

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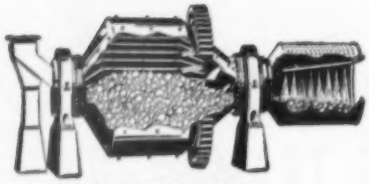
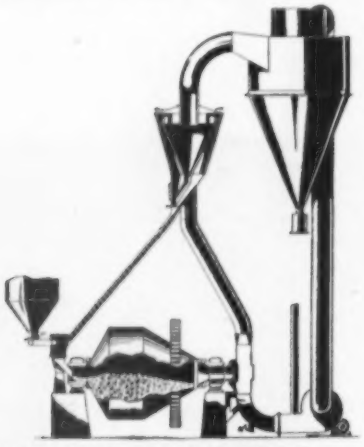
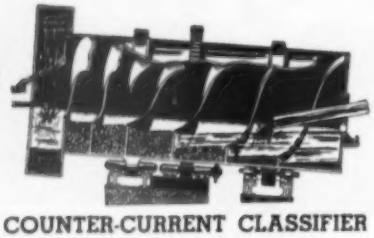


CONICAL SCRUBBER
For speedy removal of clay and dirt from quarry or mine product after preliminary crushing. Bulletin 37-A-8.



HARDINGE AIR CLASSIFIER
Product fineness closely controlled down to 99½ passing 325 mesh. Bulletin 17-B-8.

HARDINGE SCRUBBERS AND CLASSIFIERS



COUNTER-CURRENT CLASSIFIER
A simple and trouble free device for wet separations between 20 and 200 mesh. Bulletin 39-B-8.

HARDINGE HYDRO-CLASSIFIER
Combined with counter-current unit, positive control of sizing and moisture of both oversize and fines is possible. Separations from 48 mesh to finer than 400 mesh can be made. Bulletin 39-B-8.

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P. J. Dumas

National Gypsum Company has announced the appointment of PAUL J. DUMAS to the position of plant manager of the New Orleans, La., plant, which is part of the Asbestone Corporation recently purchased by National Gypsum. Formerly plant manager of the company's paper mill at Pryor, Okla., Mr. Dumas is a graduate of Washington and Lee; he also attended New York University. He served for 2½ years in the Army.

Promotions were announced recently for C. R. HEILIG, G. W. EDWARDS, J. D. HYSONG, and D. B. BAXTER by Harvey N. Barrett Jr., vice-president of sales, Basic Refractories, Inc., Cleveland, Ohio.

Mr. Heilig was named sales manager of the newly-created Central District, and Mr. Edwards is assistant manager. This district comprises Cleveland, Buffalo, Detroit, Valley, and Ohio River steel-producing areas.

Mr. Hysong heads Basic's newly-formed Midwestern Sales District, with offices at Gary, Ind., and St. Louis, Mo. This office will serve producers in Chicago, Duluth, St. Louis, and southern and southwestern territories.

Mr. Baxter, associated with Basic since 1945 as service engineer, has been named to manage the Eastern Sales District offices in Pittsburgh and Philadelphia. This district comprises Pittsburgh, Wheeling, Weirton, Philadelphia, and New England.

Dragon Cement Company, Thomaston, Maine, recently elected NILS ANDERSON, E. SPENCER MILLER, and R. H. B. SMITH to the board of directors.

National Gypsum Company has announced the following changes in its engineering department due to engineering and construction activities involved in the company's expansion program. WALTER H. WETZEL, chief mechanical engineer, will have the additional responsibility of coordinating design and construction work. Special engineering assignments will be handled by WALTER A. SCHMIDT. PETER BADAME has been promoted to field construction superintendent in charge of all construction work, and WALTER V. SULKOWSKI has been made chief draftsman.

CHESTER C. KELSEY, manager of the Asbestos Cement Products Association, has been called to serve as president of the American Trade Association, both of New York.

H. L. EVANS, Flintkote Company, has been elected vice-president in charge of manufacturing. Mr. Evans spent 25 years at the company's plant at Chicago Heights as manager, leaving that post in November, 1951 to be in charge of all manufacturing operations of the company. His new office location will be East Rutherford, N. J.

Obituaries

W. H. Hurley

WILLIAM H. HURLEY, 66, metropolitan Chicago sales manager for Marquette Cement Manufacturing Company and long prominent in the building supply industry, died on June 7 at a hospital in that city.

Mr. Hurley joined the sales staff of Marquette Cement Manufacturing Company in 1914. Three years later he went with Consumers Company and subsequently was salesman for the Universal Atlas Cement Company and H. D. Conkey & Company before returning to the Marquette organization in 1933. He was appointed sales manager in 1935.

W. RAY CLARK, one of the proprietors of Everett & Clark, Contractors, Plattsburg, Mo., died in May of this year after an illness of two weeks. Mr. Clark was a director of the National Agricultural Limestone Institute, Inc., and took a very active part in that organization's affairs.

C. J. KNICKERBOCKER, 43, superintendent of the Missouri Portland Cement Company's plant at Cement City, Mo., died recently at Independence, Mo. He had been associated with Missouri Portland Cement for the last two years.

GEORGE BOZICH, proprietor of the Monon Crushed Stone Company at Monon, Ind., for the last seven years, died recently after an illness of two weeks. Mr. Bozich, who was 62 years of age, had been engaged in the quarry business in Illinois before he began operating the Monon firm.

J. E. BARNES, former vice-president in charge of sales for the United States Potash Company, Carlsbad, N. M., died recently at his home in Greenville, Ala. Mr. Barnes had retired from his duties in 1951 because of ill health, but he continued to serve U. S. Potash as a consultant until his death.

GEORGE W. RYAN, president, Chazy Lime and Stone Company, Chazy, N. Y., died on June 25. Mr. Ryan was a member and active supporter of the National Agricultural Limestone Institute.

LOUIS MATTHIAS, 78, died June 19 at Bay Ridge, Ohio; he was the Medusa Cement Corporation's oldest employee, having been with them for 60 years. He started work as a cooper at the Bay Ridge plant in 1893 when the company then known as the Sandusky Portland Cement Co. still packaged its cement in barrels for shipment.

St. Mary's Cement Co., Ltd., lets a real rock hauler handle heavy limestone slabs. An Athey PD10Q Trailer and Caterpillar DW10 Tractor carry 15 tons of the rock over a 2000' up-hill haul. Slabs weigh from 25 to 6,000 pounds each and are dropped 5' to 10' into the trailer. In the first year of service all five units have been remarkably trouble free — no repairs have been necessary.

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Legal Decisions

By LEO T. PARKER

Attorney at Law
Cincinnati, Ohio

During the first few months of 1953 the higher courts in different localities rendered several decisions especially important to buyers, sellers, producers, and users of nonmetallic products who desire to eliminate expensive legal controversies. I shall briefly review the cause and outcome of these new decisions. Quite obviously, these new citations may be used advantageously by readers and their lawyers to win unavoidable law suits.

Must Obtain Certificates

Recently a reader wrote as follows: "In one of your legal articles in PIT AND QUARRY you cited a case where a city refused to pay for materials purchased by an official who had no authority to buy the materials. If city officials unintentionally exceed their legal authority and purchase materials which are used by the city, and for the benefit of citizens, certainly the seller can compel the city to pay the agreed contract price, can he not?"

According to a late higher court decision, the answer is no.

For illustration, in *Schumacher Stone Company v. Village of Columbus Grove*, 57 N. E. (2d) 251, a stone company sued a municipality to recover $534 for crushed stone delivered to the municipality and used by the city in repairs of its streets.

During the trial evidence was introduced which showed that a state law provides that officials of a city may not legally make any contract involving the expenditure of more than $50 unless there is attached to the contract a certificate of an officer of the city that the amount involved has been lawfully appropriated by bond issues.

Further testimony showed that the stone company supplied the $534 worth of crushed rock without considering the above state law and without a certificate attached to the contract.

In holding that the stone company could not collect the contract price of $534 due for the crushed stone, the higher court said, "In this case no certificate of any kind was furnished."

The fact that the stone company failed to obtain certificates for the crushed stone from the municipal officials relieved the city from making the payments to the stone company. The higher court refused to hold that the municipality must pay for the stone, although the testimony showed that it was used on the city streets.

For comparison, see *Hawley v. City of Toledo*, 191 N. E. 827. Here the higher court held that a seller could not recover payment for crushed stone

and gravel supplied a municipality, where the testimony proved that the contract of purchase was not authorized by the city council, as required by a state law.

In *McCloud & Geigle v. Columbus*, 44 N. E. 95, the court clearly explained why all persons, sellers and companies, which transact business with a municipality, must know the law. This court said:

"An occasional hardship may accrue to one who negligently fails to ascertain the authority vested in public agencies with whom he deals. In such instances the loss should be ascribed to its true cause—the want of vigilance on the part of the sufferer, and statutes designed to protect the public should not be annulled for his benefit."

Must Inspect Tools

A reader asked this question: "What is the law about employees collecting damages for injuries caused by defective tools? Is the employer liable where an employee's injury is caused by the employer permitting him to use a defective tool or appliance?"

The higher courts hold that an employer can win a favorable verdict in a suit filed by an injured employee if he proves that he employed competent persons to inspect and repair defective tools regularly. This is so because an injured workman can recover damages from his employer for an injury only when he proves that the injury resulted from negligence of the employer. Hence, if an employer proves that he hired an employee to inspect and repair defects in the tools regularly, this testimony is sufficient to convince a jury that the employee's injury did not result from the employer's negligence. Generally speaking, failure of an employer to prove these facts will result in the employer being held liable in damages for an injury to an employee caused by defective tools, or other equipment.

For example, in *S. Stone Company v. Hughes*, 177 Pac. (2) 489, the testimony showed facts, as follows: The company employed a driller whose duties were to operate a drill, and make holes in the face of the rock. Dynamite was placed in the holes and exploded, thereby tearing down and removing rock from the face of the cliff. One morning at about 1:30 a.m., while the driller was operating the drill, the lamp which was furnished to him by the employer went out. Soon afterward while operating the drill in the dark a rock fell, striking the employee on the head and fatally injuring him.

In subsequent litigation the higher court held the employer liable in damages to the dependents of the deceased driller, saying that if officials of the stone company had regularly inspected the lamp and kept it in repair, the employee would not have been killed. In other words this court held that the employer's negligence caused the death of the employee, and that the dependents could recover damages amounting to $50,439.

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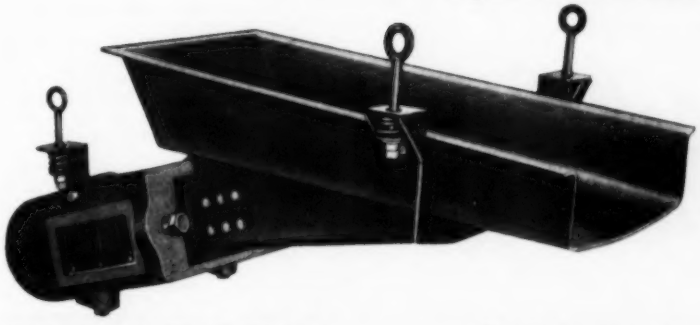

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Patent Infringement

Another reader asked this question: "What amount of damages may the owner of a patent recover from an infringer?"

The answer to this question depends on the profits earned by the infringer. Generally speaking, the infringer is liable for all profits it earned during the process of making, selling, and using the patented device or article.

For illustration, in the case of *Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co.*, 30 F. (2d) 281, a patentee filed suit against a corporation for infringement of his patents.

It is interesting to observe that the higher court allowed the patentee $310,475 damages in view of testimony which showed that the corporation had transacted, during the infringing period, a total gross business amounting to approximately $1,396,781.

Sub-Contractor Not Liable

A few days ago I received an unusually interesting letter containing this passage: "I am a sub-contractor, and took a contract from a general contractor to do cement work on a building. The owner now is suing me for what he claims is my defective workmanship. Can the owner win this suit?"

According to a late higher court decision, the answer is no. This is so because, generally speaking, a sub-contractor is not personally liable to an owner for defective work, particularly if the owner contracts with a principal contractor who employs or makes a contract with a sub-contractor.

For example, in *Kircher v. Hunter*, 281 Pac. 1047, it was shown that a property owner and a principal contractor made a contract by the terms of which the latter agreed to construct a building. The principal contractor made a contract with a sub-contractor, who installed all of the stone work. Later, when the stone work proved defective, the owner demanded that the sub-contractor repair the defects. The latter refused to do so, and the owner filed suit. The lower court held the sub-contractor liable, but the higher court reversed the verdict, and said:

"It has been held that there is no privity of contract between an owner and a sub-contractor. . . . In the instant case, the whole amount of the contract price was made payable to Aye (principal contractor), who employed the appellant (sub-contractor) herein. The courts cannot contract for parties."

Other higher courts have held that if the contract between the owner, the general contractor, and the sub-contractor states that the owner may elect to hold either contractor liable for defective work then, under these circumstances, the owner may sue the sub-contractor. Otherwise, the owner must sue the general contractor who, of course, has recourse against the sub-contractor.

Eminent Domain

Another reader asked this question: "Can a state condemn private land and

use it without paying the owner the full value of the land? How about special values added to the land by the public improvements? Can the owner collect these added valuations?"

It is well established law that a state, county, or city may take for public purposes any land, or property, against the will of the owner, and pay a reasonable amount therefor.

For instance, in *People v. Olsen*, 293 Pac. 645, a state condemned certain land for the purpose of constructing a highway through it. A reasonable valuation for this land was paid to the owner. Later the owner sued to recover additional damages for sand and gravel taken from the property and used to build the highway.

In holding the property owner not entitled to recover the value of the sand and gravel, the court said:

"Ordinarily the market value of the land which is taken in eminent domain is the measure of damages for the condemnation thereof. . . . In estimating the market value, any and all purposes to which the land may reasonably be adapted should be considered."

Hence, the reasonable value of the land at the time it was appropriated is the lawful amount allowable and payable to the land owner. Obviously, if a tract of land is appropriated by the government, state, county, or municipality other lands in the neighborhood will increase in market value. Nevertheless, the owner of land adjoining a tract which had been appropriated for public improvements may not recover the enhanced value of the land.

For example, in *Tiger Quarries v. United States*, 143 Fed. (2d) 110, it was shown that the United States condemned 960 acres of land for public improvements. The Tiger Quarries owned aproximately 42 acres adjoining this improvement which later was appropriated. The jury allowed the Tiger Company $12,158 and ordered the government to pay this amount to the quarry company. The latter appealed to the higher court on the contention that the allowance should have been more as the normal value of land in this area had increased considerably since the government had started its first project.

The higher court upheld the jury's verdict, which based the damage allowance upon the value of the land before the government had appropriated other adjoining tracts.

Sells Mortgaged Equipment

The higher court in Nevada rendered an unusual decision: that if the owner of mortgaged equipment defaults in making agreed monthly payments, the holder of the mortgage may without any notice to the mortgagor sell the equipment. This court also held that a state law which refers specifically to "livestock" is applicable to mechanical equipment.

For example, in *Cram v. Wells Cargo*, 253 Pac. (2d) 201, a state law was litigated which provides that if a mortgagee or purchaser defaults on any of the terms, conditions, covenants, or agreements of

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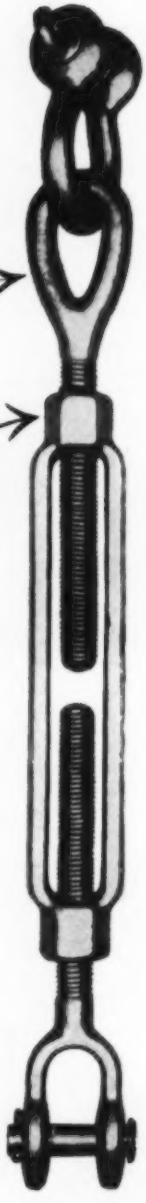

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any chattel mortgage whereby live stock is mortgaged, it is agreed that the mortgagee may, without foreclosure and without legal proceedings take possession of the mortgaged live stock. Also, the law provides that the mortgagee is authorized to make and execute such bills of sale or other conveyances necessary to convey to the purchaser or purchasers thereof an absolute title in the property so sold.

A contractor named Cram purchased certain heavy dirt-moving equipment and gave a mortgage as security for a note on which a balance of $39,088.90 remained due. In other words, Cram made a down payment, but he owed $39,088.90 before he owned the equipment without liens. The contract of sale was between Cram and the Nevada Rock & Sand Company, which owned the mortgage.

When Cram failed to make the agreed payments, the Nevada Rock & Sand Company sold the equipment for the sum of $16,500 to Wells Cargo Company, which then took possession. No notice of the sale was given to Cram, and Nevada Rock & Sand retained the sale proceeds.

In subsequent litigation, Cram contended that Nevada Rock & Sand Company had no legal right to sell the equipment to Wells Cargo without usual notice and legal procedure because the above mentioned law is limited to mortgages of livestock and therefore is not available in such a case as this.

The higher court refused to agree with Cram's argument and held the sale valid by which Nevada Rock & Sand Company sold the repossessed equipment to Wells Cargo. The court said:

"Cram misconceives the purpose and effect of the state act in question. The purpose is to simplify the drafting of mortgage instruments. It is not intended to provide to parties rights which were not theretofore available to them by contract or to take from them the right to contract in certain respects. We conclude that the sale by Nevada Rock & Sand to Wells Cargo was pursuant to a grant of power of sale; that good title and right to possession passed thereby to Wells Cargo."

Individual Contractor

Modern higher courts consistently hold that an individual contractor is not entitled to receive compensation under the State Workmen's Compensation Act. If the testimony shows that the employer did not undertake to direct the manner in which the employee must work, the relation of independent contractor exists, and the injured employee cannot receive compensation.

For example, in *Massey v. Poteau Trucking Company,* 254 S. W. (2d) 959, it was shown that one Hogan held a state highway department contract to surface a highway. The Arkhola Sand & Gravel Company maintained a mixing plant and sold the prepared asphalt to Hogan, who arranged with a truck owner named Poteau to transport the mixture to the point of use. Hogan's haulage commitment was to pay Poteau 5½ cents per ton-mile. Poteau hired other truck owners, one of whom was a man named Massey. Massey forwarded his accumulated tickets to Poteau and received payment at 4½ cents

per ton-mile. This gave Poteau a profit of one cent per ton-mile. Massey was paid $122.12 without deductions for social security or otherwise.

One day Massey had an accident and his truck overturned, seriously injuring him. The questions presented the court were whether Massey was a legal employee of Poteau, and who must pay Massey compensation for the injuries.

As the testimony showed that Massey was paid per ton-mile travel, retained full control of operation of truck, made his own repairs, and furnished gasoline and oil, the higher court held that Massey was an individual contractor and not entitled to compensation from Poteau. The court said:

"Was Massey an employee of Poteau, the sub-contractor? When the truck overturned, Massey was in full control, uninfluenced by any directions as to speed, road conditions, or other factors that conceivably could have contributed to the accident."

For comparison, see *Wren v. D. F. Jones Construction Company*, 210 Ark. 40. Here a widow claimed compensation for her husband's death and the construction company denied that Wren was its employee. The court held:

"Where the deceased was engaged to haul gravel for appellee (employer) at $3.00 per load, appellee loading the truck and showing the deceased where to dump the gravel . . . the finding by the Commission that the deceased was an independent contractor is supported by substantial evidence."

This higher court also explained that an employer never is liable for injuries caused persons or property by negligence of an individual contractor. Moreover, an injured individual contractor cannot sue and recover damages from his employer, unless the testimony proves conclusively that the injury resulted from negligence of the employer. And, again, an employer is not required to pay social security, compensation insurance, or the like on an individual contractor.

Circumstantial Evidence

According to a late higher court decision, a property owner may prove by circumstantial evidence that blasting operations damaged his property.

For example, in *Weaver v. Benson*, 254 S. W. (2d) 95, it was shown that one Benson owns a fairly old concrete garage building. He sued one Weaver because of a serious crack in the south wall near the roof level, allegedly caused by a nearby blasting operation in the course of wrecking an exposed concrete foundation-floor of a former building. It was shown that the explosion hurled large rocks and debris against the wall so as to crack it or, alternatively, caused earth tremors and vibrations accomplishing the same result. Although Benson could not prove positively that the blasting operations caused the damage to his building, the higher court held:

"In blast-damage cases, the fact that causation is so often impossible of proof, except through circumstantial evidence, justifies a rather liberal attitude in judging the relevance of a particular circumstance."

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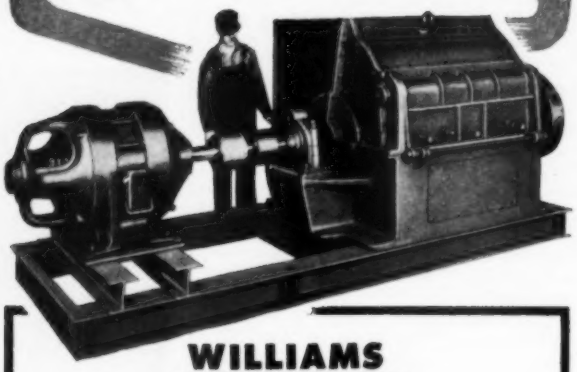

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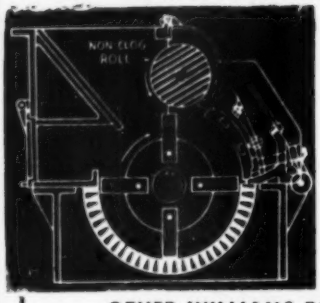

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• Tractor Drill Rig

Faster and more profitable drilling is seen with a new 4-in. rig devised by *Eugene Engineering Company*. Mounted on any crawler tractor that can drive a 400-cfm. compressor, the rig is said to have the comparative capacity of two standard wagon drills (see below).

The Eeco rig features a flexible boom, with a 20-ft. 6-in. feed capable of drilling at any degree of a circle on either vertical or horizontal plane. Compressor, air receiver and water tank are mounted to the rear of the tractor, while the frame that carries the boom is attached to the dozer trunnions on front. A tubular steel mast with a sliding sleeve carries the drill boom, which has a standard drifter and a wagon drill feed assembly. Winches control the sliding clamp and lift the base frame off the ground for moving. Drill controls are mounted on a movable panel which permits the operator to stay away from the face.

Dry drilling or "flotation drilling" can be done. The latter is accomplished by introducing water into the drill steel through an Eeco double needle assembly. Travelling from hole to hole, the frame is raised like a dozer blade. Eugene Engr. Co. is located at 1485 W. 1st St., Eugene, Ore.

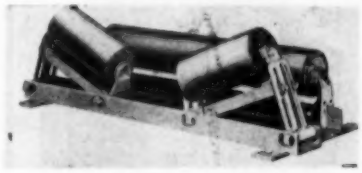
• 35-Ton Switching Diesel

To fill a gap in its line of diesel-electric switching locomotives, *General Electric* has added a 35-ton model. It is 9½-ft. wide so the operator can see around railroad cars and has recessed Pullman type

steps for easier access to the deck and for greater safety for the brakeman. A 275-hp. Cummins diesel engine connects directly to the G.E. generator, which is equipped with a winding to permit it to be used for starting the engine by storage-battery power. Starting tractive effort of the locomotive is 21,000 lb. at 30 percent adhesion. It will pull about 66 per cent more weight on the level.

• Variable Troughing Idler

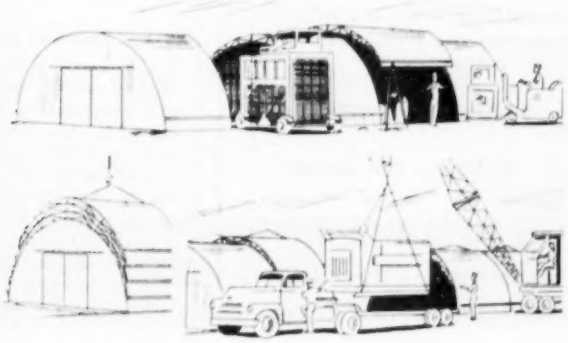
Designed to provide smooth belt transition between troughing idler and flat pulley, a new variable troughing belt con-



veyor idler has been announced by *Link-Belt*. The angle of inclination of the concentrator rolls is adjustable from 20 deg. to fully horizontal, permitting a gradual flattening of the belt as it approaches the head pulley, thus minimizing stresses and giving longer belt life. Series 100 is for all-purpose belts up to 60-in.; series 200 for belts up to 72-in. that carry the heaviest and coarsest materials.

• Handy Storage Sheds

An unusual storage shelter recently developed offers several possibilities for our field. Shaped like quonset huts, these sheds comprise independent, identical sections that butt on each other. Each section, however, can be tilted back individually to expose the contents or to admit machinery. Built of metal half-rounds, the *Yard-Stor* units nest when not in use, and have roof slings for lifting them around. Mounted on track, they can be telescoped to expose the work area. All butts form waterproof joints. Trussed and bridged steel tubing form the ribs and frame, which can be supplied covered with corrugated metal, fibre glass, etc. (below). Yard-Stor Shelter Co., 19256 John R., Detroit 3, Mich.



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FORGED
STEEL DROP BALL

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GREATER IMPACT
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The "Cape Ann" Drop Ball is a sure winner because it provides top serviceability at minimum cost.

Strong alloy steel pin. Forged connecting link, protected by deep recess, adaptable for swivel or shackle. Minimum cable replacements. Furnished complete as shown.

2000 to 8000 lbs.

Write for full details

Cape Ann Anchor & Forge Co.
Gloucester • Massachusetts

Galigher Pump ↑

Pioneer Plant →

• Acidproof Sump Pump

A new 1½-in. acidproof sump pump for handling sludges, corrosive or foamy liquids with suspended solids as well as for all types of difficult pumping where heads up to 35-ft. and flows to 75-g.p.m. are required has been announced by the *Galigher Company*. This simple welded steel vertical pump, completely rubber lined and covered, has an overhung suspended shaft design that eliminates all submerged bearings, packings and other trouble parts. It operates until the sump level is below the lower suction cover, and will empty tanks to 2½-in. from the bottom. A rubbercovered, acidproof float switch can be fitted to it, and Neoprene and special rubber compounds are available.

• Belts Stops Rippage

Conveyor belt ripping is said to be kept to a minimum with a new belting being introduced by *New York Belting & Packing Company*. Transverse groups of high-

tensile steel wires are built-in throughout the entire length of the carcass. When a sharp, partly embedded objects starts to rip the belt, it encounters one of the wire groups and is ejected, limiting the damage to inches, the firm says. It has perfected the belt in foundry service over the past several years.

• Locomotive Helps

Two new developments announced by *General Electric* are of value to locomotive users. One is a device or changing carbon brushes "from the pit" with relatively little effort and added safety using a brush-spring lifting device that keeps the tip of the lever from snapping down on the worker's fingers. The other is a traction motor suspension bearing that is said to enable most locomotives to operate between monthly inspections without any addition of oil to the axle caps.

• Portable Gravel Plant

A new duplex crushing and screening plant has been added to the *Pioneer Engineering* line. It is a lightweight, in-line plant, primarily designed for use in gravel pits. The in-line feature on this Model 35-S means that the basic flow of the material runs longitudinally with the axis of the plant, fed at rear, discharged at front end.

The 35-S is fitted with the largest units possible and still comply with weight limitations, and has been designed especially for areas where severe weight restrictions and frequent fast moves are factors. It can be pulled in or out of a pit without dismantling or removing conveyors or other accessories.

A 1036 jaw crusher, a 3024 double roll crusher, 2½ deck vibrating screen, and either a 30G mechanical feeder or a 30-in. by 40-ft. super heavy swivel feed conveyor to conveyor on plant with a 30G feeder at the lower end are included in the plant. All units are assembled on a welded steel truck frame mounted on a rear equalizer and a singe front dolly with 12 pneumatic tires.

Total weight varies between 56,350 lb. and 58,550 lb., depending on whether bolster with wheels or semi-trailer hitch is used on the front end. With delivery conveyor folded, travel length is about 39-ft., width 8-ft. 10-in., and height 12½-ft.

• Hydraulic Control Hose

Developed for hydraulic controls on earth-moving and other machinery, a new *Quaker* hose is reinforced with steel wire to withstand pressures up to 5000 p.s.i. Compounded to resist all popular hydraulic fluids, the rubber core is protected

by layers of high-tensile steel for maximum flexibility and burst resistance, having one steel layer in medium-pressure hose and two or three in high-pressure types. Flexibility remains at temperatures from —40 to 250 deg. F. Sizes range from 3/16 to 2-in. inside diameter. Cross-wrapped rubber or rubber-impregnated cotton braid carcass covers are available.

• Front-end Loader Has TC

TC (torque convertor) has become as important to front end loaders as SA is to movie sirens, a recent *Pettibone Mulliken* release indicates. One of the first to use TC on its materials handling equipment, the firm introduced it some time ago

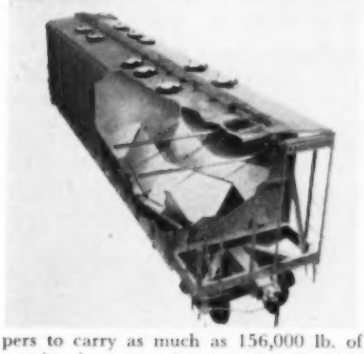
on the 1½-cu. yd. Speedall front end loader for limited sectional distribution.

Now available throughout the nation, the torque convertor Speedall model 15 offers many advantages, the firm says, among them extra power for tough going, and smoother, faster acceleration throughout the entire loading cycle regardless of the load size. Inch-by-inch control of the foot accelerator without shifting speeds or slipping the clutch is possible with the TC, virtually eliminating the shocks, jars and jolts that so often damage operating mechanisms. The engine operates with full power for full loads or "just enough" power for light loads, because of automatic power selection. It cannot be stalled.

The Speedall "15" has a 15-ft. 9-in. height over closed bucket, fully raised, and a reach of 3-ft. 7-in. at maximum dumping clearance. It is available with gasoline or diesel engine.

• Airslide RR Car

The Airslide principle of materials conveying has been built into a new railroad car by *General American Transportation*. The big steel "package" is leased to ship-



pers to carry as much as 156,000 lb. of powdered or granular materials. Loaded by gravity through roof hatches, the new GATX car ties up with the air supply at its destination to let the Airslide feature facilitate unloading.

• Tire Matching Caliper

A handy new caliper for matching dual tires to give truckers more efficient fleet operation and lower cost per mile has been announced by *U. S. Rubber Co.* The tool insures proper matching when installing new tires or recaps or when rotating.

NOW! THE DYNACLONE®

PATENTED

The ULTIMATE in Dust Filters

❶ CONSTANT SUCTION AT DUST SOURCES

❷ SELF CLEANING FOR CONTINUOUS OPERATION

❸ NO AUXILIARY MOTORS OR BLOWERS (THE MAIN OPERATING FAN DOES THE CLEANING)

❹ NO ABRASION OF BAGS BY THE CLEANER

The traveler (T) is open to atmosphere by means of a 4-inch flexible hose. As the traveler contacts the open end of each bag, the negative pressure which exists in the dust chamber draws a blast of air (from the atmosphere) through the bag to thoroughly clean it.

Each bag is cleaned, on an average, once every five minutes, thereby assuring uniform suction at dust sources.

The Dynaclone has now been in operation in many different industries for the past three years. More than half of present orders are from the same customers.

SEND FOR BULLETIN . . .

NO. 102

THE W. W. SLY MFG. COMPANY

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Detroit • Buffalo • Cincinnati • St. Louis •
Minneapolis • Birmingham • Los Angeles • Toronto

SLY PIONEERS & LEADERS in INDUSTRIAL DUST CONTROL

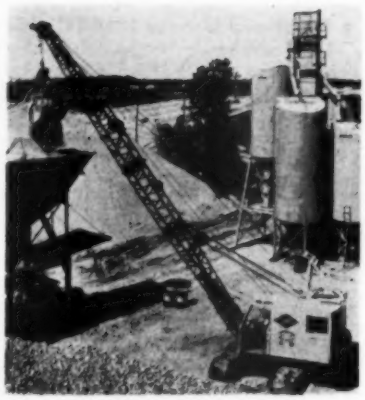
• Roto-Crusher

Crusher-plant operators are showing interest in the first production installation of the new Latture Roto-Crusher at a large Southern California aggregates plant, details of which will be forthcoming shortly. The crusher is being built by the *Waldrip Engr. Co.*, Hollydale, Calif.

The heart of the machine is a pair of 20-x-20-in. opposed and mated corrugated rotors, one concave, the other convex. Independently driven and accurately timed, these fracture the incoming material by multiple transverse loading, which is said to result in the elimination of flat, slivered or elongated particles. Compression between members is maintained hydraulically. The hydraulic system contains an accumulator that contains both oil and gas: the oil to assure positive pressure between the rotors, while the gas can compress sufficiently to allow tramp iron to pass.

• Locknut

Loosening of nuts due to vibration is prevented by a patented locknut offered by *Security Locknut Corporation*. The nut, similar to and installed like any ordinary nut, features a built-in retainer ring. It can be reused as often as needed, does not require bolt tension, and carries the load on the nut body rather than on the locking insert. The firm is located at North and 15th Aves., Melrose Park, Ill.



• New Lima Crane-Shovel

A new shovel-crane (one cu. yd. or 25 tons) has been added to the *Lima* line for a variety of work. It can be had with crawler or rubber mounting. As a shovel, Type 44 is fitted with a 20-ft. boom and 18-ft. dipper handle. Crane booms run up to 100-ft. less jib, with jibs of 15, 20 and 30-ft. available.

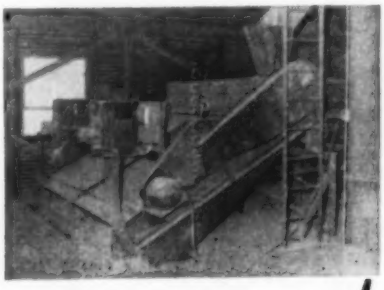
Two structural H-beams, welded integral with the side frames, form the crawler truck frame. The standard crawler is 12-ft. 3-in. long with 30-in. tread pads, but a 15-ft. crawler may be had if desired. Four front rollers are tandem mounted on equalizer beams, and with two rigid-mounted rear rollers provide weight distribution over a large area. The main machinery and power plant is placed well to the rear of the center line of rotation for maximum counterbalancing.

Anti-friction bearings carry power all the way to the digging end, and are used on the main hoist drums as well. Special Twin-Disc swing clutches, manually controlled, have their heat dissipated through specially designed fins in the housings. Safety glass windows in the cab can be opened when desired. A torque converter is available for the "44".

• Replacement Crawlers

New shoes for tractors, made of Oro manganese steel, not only last longer but keep the tractor on the job for longer periods, cutting both mechanic time and parts inventory, *Kensington Steel Co.*

says, describing its replacement tracks for all crawler tractors. Made of abrasion and shock-resistant manganese steel, these tracks are cast in two parts. Grousers have heavied-up sections at vulnerable points to prevent breakage and bendage. Rail links are cast as one-piece to stop the wear caused by twisting and weaving in ordinary track. Heat-treated alloy steel pins are pressed into place under heavy pressure, and assembled track is furnished to the user with a master pin ready for mounting. Address: Chicago 28, Ill.



The Enclosed Leahy

HEATED SCREEN

Meets Variable Conditions

The totally enclosed Leahy Screens above, with FlexElex electric heating of screen cloth, are proving their worth in a plant where screening conditions vary from dry to damp . . . day by day or even hour by hour.

When damp fines are screened, FlexElex keeps the mesh dry and wide open for full capacity, accurately sized production.

When dry or dusty material comes along, the enclosures keep dust under control.

Thus, the Leahy meets every fine mesh screening condition efficiently and economically.

The Leahy

Send for Bulletin 15-J . . . and ask especially for information about the new Model D with equalized screen tensioning.

THE DEISTER CONCENTRATOR COMPANY

The Original Deister Co., Inc. 1906

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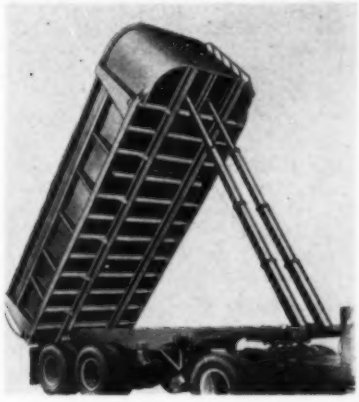
• Hoist Dump Trailers

Bigger legal payloads and better dumping is the aim of two new telescopic hoist dump trailers introduced by *Hercules Steel Products*. The units feature an extreme front-end mounting of the telescopic



hoists and a simpler method of packing their joints for lower maintenance. Lower pump pressures, better over-all dumping stability and up to 2000 lb. increase in legal payloads are among the benefits claimed. One unit, a 17-ft. single axle trailer, has a 10 to 17 cu. yd. capacity. The other, a 20-ft. tandem unit, will handle 12 to 26 cu. yd. Hoists and bodies can be had separately for mounting on any trailer.

• Oil Clutch for Cats

A major development, the oil-type flywheel clutch, has been introduced as standard equipment on three *Caterpillar* track-type machines, the D6 and D8 tractors and the No. 6 shovel. Fruit of 11 years' research, this clutch is said to oper-

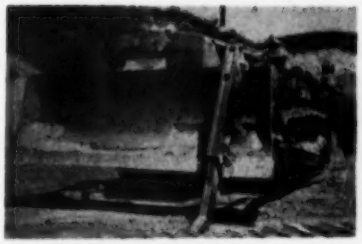
ate two to four times as long as an equivalent dry clutch before major adjustment or overhaul is needed.

The longer life of the new unit is particularly apparent in its friction discs, the firm reports. Oil absorbs the entire load when the clutch is engaged up until the last few revolutions before full engagement, when the friction faces finally come into direct contact. The oil serves also to cool the entire clutch and to lubricate throughout the whole housing.

An engaging mechanism with a high mechanical advantage has been developed to offset the lower coefficient of friction the oil causes. All the high-load internal parts have also been specially hardened to reduce the pull on the clutch handle required by the operator. The D8, largest Cat made, has a booster cylinder added for greater ease of control. See photo.

Introduced along with the clutch is another innovation—a universal joint that eliminates the need for close alignment between clutch and transmission. This lowers maintenance problems, Caterpillar says.

Oil clutches were tried out more than 30 years ago by one of Caterpillar's predecessors, the Holt Manufacturing Co., but failed due to technical considerations then insurmountable.



• New Type Ripper

Clamped onto Caterpillar D8 and D7 bulldozers, a new *Preco* dozer-ripper breaks surfaces under very rough conditions. Its replaceable tooth and the shank are both made of heat-treated chrome molybdenum steel. The unit weighs 650 lb. Working depths are 8, 15, and 22-in.

Sauerman
CRESCENT SCRAPERS

dig, haul and place more yardage
faster—at lower cost!

Reduce difficult dig-haul-piling jobs to a simple, single operation with a Sauerman Crescent Scraper. Sizes range from 1/3 to 15 cu. yds. to cover the needs of material handling jobs . . . large or small.

The Crescent, with rugged toothed-blade, penetrates the hardest material with plowshare ease. The unique bottomless scraper gathers a full load on the forward pull and hauls at ground level to the discharge point for an instantaneous, clean dump. A single operator situated in a safe, comfortable cab overlooking the work area, automatically controls all the digging, hauling and dumping operations.

Sauerman Scrapers are reasonable in first cost, simple and economical to maintain. Engineered to combine sturdy construction and wear-resistant lightweight metals, the Sauerman Crescent Scraper gives you small power consumption—diesel, gasoline or electric—compared to tonnages handled. Scrapers installed more than twenty-five years ago are still giving trouble-free service and are considered as good as new by their owners.

Write today for Catalog J for full information about the Crescent Scraper. Sauerman Bros., Inc., 534 S. Clinton St., Chicago 7, Ill.

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SAUERMAN BROS., INC.

Removing a four-foot core from the corebarrel of a Sprague & Henwood contract drilling rig at an iron ore property in Northern New York.

Good Cores
from ANY formation

The efficient organization and equipment developed during more than sixty years of successful world-wide experience in contract diamond drilling enable us to obtain a high percentage of core from any rock or ore formation. Unfavorable conditions are overcome, in many cases, through the use of special tools developed by our own engineers and manufactured in our own extensive shops.

Besides all types of exploratory drilling for coal and ore, our service includes foundation testing and pressure grouting. Experienced crews and supervisors are available for service anywhere in the United States and most foreign countries. Estimates submitted on request.

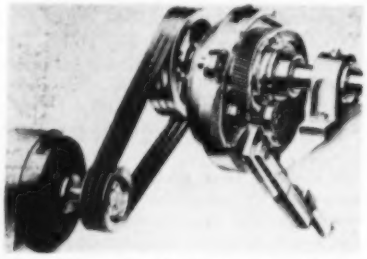
The same high-speed drilling machines, improved diamond bits and complete accessory equipment used by our own crews are available to other diamond drill operators. Write for Bulletin 320 and tell us about your operating conditions. Our experienced executives welcome opportunities to make money-saving suggestions.

Sprague & Henwood, Inc.
SCRANTON 2, PA.

See our 4 page insert in McGraw-Hill Mining Catalog

• Shaft Speed Reducer

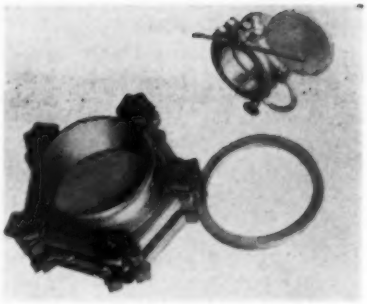
Mounted directly on standard shaft extensions, a new speed reducer introduced by *American Pulley* extends the advantages of V-belt drives to cover a wide variety of slow-speed equipment. A 13-to-1 ratio features this Shaft-King series,



adaptable to any shaft up to 3-15/16-in. Bearing seals are eliminated in the leak-proof oil system, and both ball and tapered roller bearings are used. Overload releases and reverse preventing backstops are optional.

• Line Blind Valve

A new 5-bolt, 18-in. line blind valve for larger pipe lines has been introduced by the *Hamer Oil Tool Co.* It has an A.S.A. rating of 150 lb. for working pressures up to 230 lb. The valve provides a full-diameter, smooth, round opening, or a permanent, leak-proof shut-off. Hycar packings are standard, but other materials may be used. The neck of the spectacle plate is suspended by the top bolt



so that it can be revolved in either direction when opening or blinding the line. The two side bolts swing out, making it unnecessary to remove any bolts when reversing the spectacle plate. Bolts are bar-operated. (Long Beach 6, Calif.)

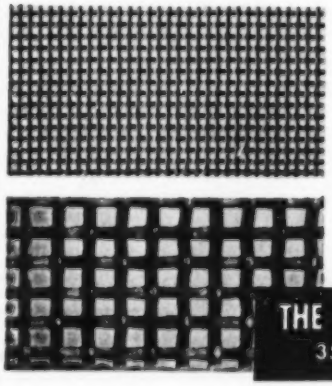
• Wire Braid Air Hose

Working pressure up to 400 p.s.i. are possible with a new heavy-duty *B. F. Goodrich* air hose. Called the Commander, it is reinforced with a single braid of high tensile steel wire for added flexibility. It is made in ½, ¾, and 1-in. sizes.

• Rust-Cutting Oil

Maintenance men will welcome a new rust-cutting oil reported by *DuPont*. Sprayed from a 6-oz. aerosol can at a flick of the finger, it helps loosen corroded nuts, bolts and studs in a few minutes. Made by Kearney Corp., 4236 Clayton, St. Louis 10, Mo.

AROUND THE CLOCK
EVERYDAY—WITHOUT SHUTDOWNS
CLEVELAND WIRE SCREENS



Everyday—around the clock... less down time... increased tonnage... greater production can be yours when you install longer life "Cleveland" Wire Screens. Tough—yet ductile, produced by craftsmen, "Cleveland" wire screen sections maintain rigid accuracy of openings, have fewer wire breaks, prove greater resistance to abrasion, corrosion and fatigue. Mail us your requirements—our specialists will make recommendations at once.

Write for Bulletin No. 5 and 6.

THE CLEVELAND WIRE CLOTH & MFG. CO.
3574 E. 79 STREET · CLEVELAND 5, OHIO

traffic news

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

Docket A 14537 (c)—Proposed to establish on dolomite, roasted, carload, 90 percent of marked capacity of car, Dolly Siding, Mo., to Owensboro and Steelton, Ky., 472 cents net ton. Not subject to X-162-6-8.

Docket A 14540 (a)—Proposed to establish on limestone, ground or pulverized, carload 44 tons, Sparta, Tenn., to Jacksonville, Ill., 525 cents net ton. Not subject to X-162-6-8.

Docket A 9837 (ERR(S) C-SFA - 6545—Proposed to establish on limestone, ground or pulverized, in closed cars, carload, Carey, Ohio, to Jackson, Miss., 638 cents per gross ton. Not subject to X-162-6-8.

Docket A 14575 (c)—Proposed to establish rate of 735 cents per net ton on limestone (except asphaltic) ground; or pulverized, carload, Tate and Cartersville, Ga., to Boston, Mass., rate points in Central Freight Association tariff 470-B.

Docket A 14647 (a)—Proposed to establish on stone, crushed (except bituminous or bituminous asphalt rock) in closed or protected open-top cars, carload 90 percent marked capacity of car, Mt. Airy, N. C., to E. St. Louis, Ill., rate of 534 cents per net ton. Not subject to X-162-6-8.

Docket A 14809—Proposed to establish on limestone, ground or pulverized, in closed cars, carload 40 tons, Rockwood, Ala., to E. St. Louis, Ill., and St. Louis, Mo., 373 cents per net ton. Not subject to X-162-6-8 increases and proposed rate of 238 cents net ton to E. St. Louis, Ill.

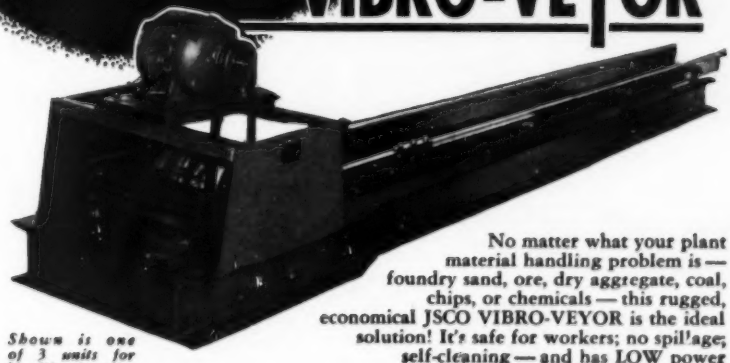
TRANS-CONTINENTAL FREIGHT BUREAU

Docket B-22 (S)—Publish alternate rate of 67 cents on common lime, carload, not subject to X-162-6-8, minimum 50 tons, Francis Creek, Wis., to Los Angeles, Calif., item 4076 tariff 1.

(Continued on following page.)

RUGGED! EFFICIENT!

The Ideal Way to MOVE Bulk Material is the VIBRO-VEYOR



Shown is one of 3 units for handling foundry floor clean-up sand.

No matter what your plant material handling problem is — foundry sand, ore, dry aggregate, coal, chips, or chemicals — this rugged, economical JSCO VIBRO-VEYOR is the ideal solution! It's safe for workers; no spillage; self-cleaning — and has LOW power consumption. Write for details

JOHNSTONE DIVISION OF
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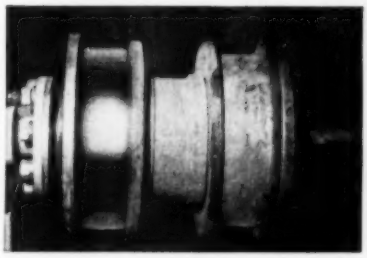
CONSISTENTLY GOOD

build-up results . . .



specify

REXARC "S-3"

- Recommended for rebuilding crawler type tractor parts, crushers, hammers, bucket lips and dozens of other applications.
- Metallic coating assures maximum deposit of weld metal. This means Rexarc is the least expensive electrode on the market, regardless of price per pound.
- An all-position electrode. Applys equally well on AC or DC.
- Easiest build-up electrode on the market to apply. Exceptionally quiet arc.
- Deposits absorb extreme shock, resistant abrasion. Outwears new parts 3 to 10 times.

REXARC
HARD-FACING AND MANGANESE ELECTRODES

For further information; see your Welding Supply Distributor or Write

SIGHT FEED GENERATOR COMPANY
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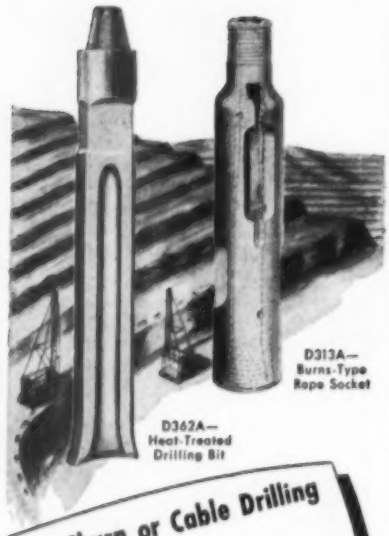
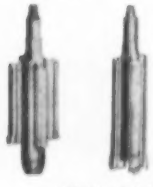


For Churn or Cable Drilling
of
• BLAST HOLES
• PROSPECT HOLES
• SAMPLING
SAFE • EFFICIENT • ECONOMICAL

Spang Churn or Cable Tools are top performers in their fields for drilling test holes when prospecting or sampling . . . drilling blast holes for fragmentation of minerals or overburden . . . drilling and reaming escape, dewatering and ventilating holes . . . and drilling wells for other purposes. Fifty years' experience serving oil, water-well, mining and quarrying operations assures their value.

R606—Reamer-Type
Pilot Bit



LARGE BITS
for pilot hole drilling and stage enlargement reaming of dewatering, ventilation and escape holes.

D370F—Prefabricated
Star Bit

SPANG CABLE TOOLS
made by
SPANG & CO., BUTLER, PA.
for
• SHOT BLAST HOLES • WELL DRILLING
• PROSPECT DRILLING • SAMPLING

SOUTHWESTERN FREIGHT BUREAU

Docket 64548 (S)—Proposed to establish rate of 53 cents on stone, Rockton, S. C., to Kansas City, Mo., minimum weight 50 tons. Not subject to X-162-6-8.

Docket 64721—Establish rate of 472 cents per net ton on dolomite, Dolly Siding, Mo., to Owensboro and Steelton, Ky. Not subject to X-162-6-8 increase.

Docket 64839 (S)—Proposed to establish on limestone, natural, ground, or pulverized, (unburned) Limedale Spur and Myersville Spur, Ark., to Rockford, Ohio, minimum weight 30 tons or $4.75 per net ton, not subject to X-162-6-8, in open cars; and $5.24 per net ton, in closed cars, not subject X-162-6-8 increases.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

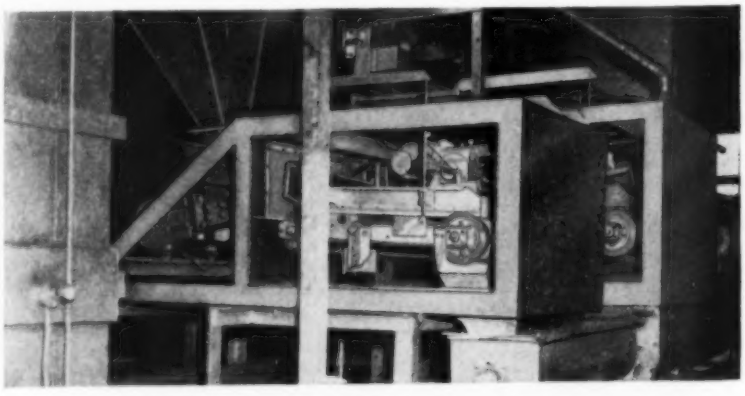
Docket TL M-2872 (Shipper)—Proposed to establish on crushed stone (will not include agricultural limestone or ground limestone, unburned, fluxing stone or firestone or stone, coated with oil, tar, or asphaltum) carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Glen Moore, Pa., to Philadelphia, Pa., $1.10 per net ton. Subject to ExParte 175-B increase. To be issued to meet motor truck competition.

Docket TL M-2870 (Carrier)—Proposed to establish on stone, natural (other than bituminous asphalt rock) crushed, in open-top cars, not protected by tarpaulin or other protective covering, carload minimum weight per note 2 of New York Central Railroad Tariff ICC 1299, from Watertown, N. Y., to Newton Falls, N. Y., $1.00 per net ton, not subject to ExParte 175-B increase; and from Norfolk, N. Y., to Newton Falls, N. Y., $1.48 per net ton, not subject to ExParte 175-B increase. Rates to be issued to meet motor truck competition.

Docket TL M 2893 (Carrier)—Proposed to establish on limestone, broken or crushed, in open-top cars not protected by tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Alsen, N. Y., to Howes Cave, N. Y., $2.07 per net ton. Subject to ExParte 175-B increase.

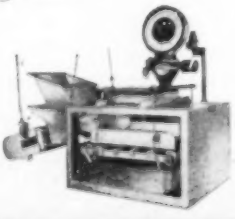
Docket TL-M-2925 (Receiver)—Proposed to establish on lime, common, hydrated, quick or slaked in straight or mixed carloads, minimum weight 25 tons (in bulk, minimum weight will be 50 tons) from Bellefonte, Pleasant Gap, and Chemical, Pa., to Lock Haven, Pa., $1.50 per net ton. Not subject to ExParte 175-B increase. To be issued to meet motor truck competition.

Docket TL-M-2940 (Carrier)—Proposed to establish rate of $1.46 per net ton plus ICC ExParte 175 increase on mine rock (braker refuse or refuse slate) car-



Two Syntron Gravimetrics weigh feeding ingredients for blending operation.

SYNTRON GRAVIMETRIC FEEDERS
For Accurate, Continuous Flow Feeding by Weight



Automatic, electrically controlled action of Syntron Gravimetric Feeders means continuous, accurate weigh feeding of bulk materials. Their electronic control insures greater accuracy than is possible with ordinary mechanical weigh feeders. Can be used in batteries of two or more for exact proportioning of materials to blending or mixing machines.

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SYNTRON COMPANY
385 Carson Avenue Homer City. Penna.

load, from Coaldale, Lansford, and Tamaqua, Pa., to Quakake, Pa.

Docket TL M-2942 (Shipper) — Proposed to issue rate on stone, crushed, uncoated; carload minimum weight 90 percent of marked capacity of car from LeRoy, N. Y., to Hornell, N. Y., $1.50 per net ton. Not subject to ExParte 175-B increase. To be issued to meet motor truck competition.

WESTERN TRUNK LINE COMMITTEE

Supplement; to X-E-41-1783 (C)—Sand and/or gravel, carload, as described in item 440, Western Trunk Line tariff 160-R, minimum weight as shown therein from Muscatine, Iowa, to Eldridge and Mt. Joy, Iowa. Proposed* to Eldridge 73 cents and to Mt. Joy 67 cents per net ton. Not subject to ExParte 175-B increase.

Docket E-41-1786 (S)—Proposed to establish on silica sand, carload, as described in item 3505 of Western Trunk Line territory tariff 5-U from Clayton, Iowa, to Minneapolis, Minnesota Transfer, and St. Paul, Minn., 245 cents per net ton in open cars and 287 cents per net ton in closed cars. Rates subject to X-175 increase.

Supplement 1 to E-41-1769 (S)—Proposed to establish on perlite rock, broken, crushed or ground, dried or not dried, minimum weight 40 tons. To Cincinnati, Ohio, from Antonito, Del Norte, and South Fork, Colo., $7.34 per net ton. Subject to X-175-B.

CENTRAL TERRITORY RAILROADS
Freight Traffic Committee

Docket 89728 (2)—Proposed to establish on crushed stone, in bulk, in open-top equipment, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Huntington to Peru, Ind., 82 cents per net ton; to Keeport, Ind., 70 cents net ton. To meet motor truck competition. Rates include ExParte 175 increases.

Docket 89733 (2)—Proposed to establish on limestone, natural, ground or pulverized, unburned, in open and closed equipment, minimum weight 30 tons, from Woodville, Ohio, to Pound, Va., 371 cents net ton in open equipment and 420 cents per net ton in closed equipment. To Meade, Va., 383 cents net ton in open equipment and 432 cents net ton in closed.

Docket 89742 (S)—Proposed to establish on sand, as described in description A of Item 200-A, Central Territory Railroads tariff 575-C, minimum weight 90 percent of marked capacity of car except that when car is loaded to full visible or cubical capacity, actual weight will apply, but orders will not be accepted for closed or open-top cars of less marked capacity than 30 tons and 40 tons, respectively, from Chicago, Ill., and points within the Chicago switching district to Bedford, Ind., 298 cents net ton.

Docket 89741 (2)—Proposed to establish rate of 108 cents net ton from Elkhart to Ross, Ind., on sand (except blast,

*Applies only on Iowa intrastate traffic.

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Typical Dwight-Lloyd Lightweight Aggregate Sintering Plant.

Aggregate cakes leaving pallets at discharge end of sintering machine.

Make your own expanded aggregate—light, strong, stable and with superior wet-dry contraction characteristics—from clay, shale, fly ash and other suitable residues or waste materials, using the

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- **LOW PRODUCTION COSTS—Automatic operation, no skilled labor required.**
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Pilot Sintering Plant at your service for testing materials under actual operating conditions. Let us test your raw materials and offer our recommendations to meet your requirements.

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SINTERING MACHINERY CORPORATION

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BELT LACING for: all conveyor belting ¼" to ⅞" thick.

THE DUAL PURPOSE LACING for PATCHING & SPLICING

No Special Tools Required: JUST A HAMMER

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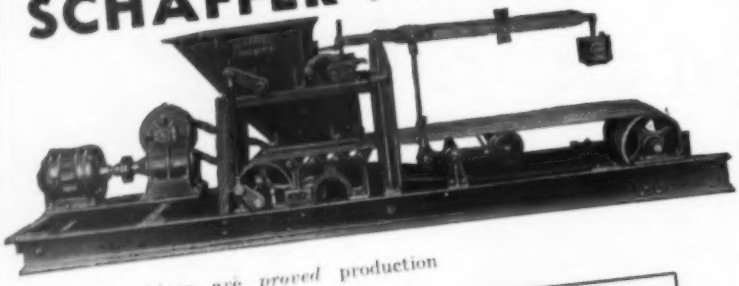
Tonnages CLIMB
when Bulk Material Handlers use
SCHAFFER Poidometers



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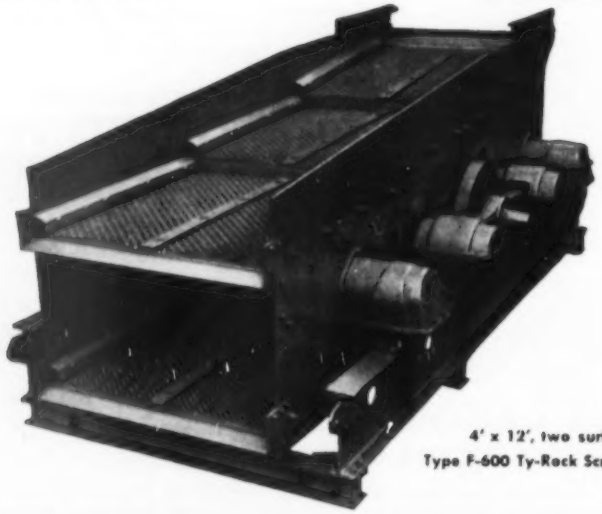

4' x 12', two surface
Type F-600 Ty-Rock Screen

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

core, engine, filter, fire or furnace, foundry, glass grinder, ground loam, molding-bonded, natural or otherwise, polishing, pulverized or silica), in open-top cars, minimum weight except as otherwise provided, 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply.

Docket 89746 (2)—Proposed to establish on stone, fluxing, furnace or foundry, melting or refractory (unburned) in bulk, in open-top equipment, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Durbin to Lima, Ohio, 154 cents gross ton.

Docket 89757 (2)—Proposed to establish on dolomite, roasted (refractory dolomite, in granular form, treated or untreated, clinkered and/or burned to a dead state, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Durbin, Ohio, to St. Louis, Mo., East St. Louis, Granite City and Alton, Ill., 451 cents net ton.

Docket 89758 (2)—Proposed to establish on dolomite roasted (refractory dolomite, in granular form, treated or untreated, clinkered and/or burned to a dead state) carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Durbin, Ohio, to Chicago, Ill., and Chicago, Illinois district stations, 374 cents net ton.

Docket 89762 (1)—Proposed to establish on crushed stone or crushed stone screenings, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Spore to Mansfield, Ohio, 76 cents net ton. To expire with December 20, 1953.

Docket 89763 (1)—Proposed to establish on crushed stone or crushed stone screenings, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Spore to Marion, Ohio, 80.5 cents net ton. Not subject to ExParte 175-B increase. To expire with December 20, 1953.

Docket 89765 (2)—Proposed to establish on stone, fluxing, furnace or foundry, melting or refractory (unburned) in bulk, in open-top equipment, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Maple Grove and Narlo to Lima, Ohio, 149 cents gross ton.

Docket 89776 (2)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons from Valmeyer, Ill., to Huron, Ohio, open-top cars not protected by trapaulin or other protective coverings, 431 cents net ton; closed cars or open-top cars protected by tarpaulin or other protective coverings, 481 cents net ton.

trade notes

International Harvester Co., Milwaukee, Wisc., has completed arrangements under which the company will occupy as a testing ground, the site of the Huntsville-Sinclair strip coal mine, eight miles northeast of Huntsville, Mo., for the purpose of carrying on large-scale testing operations of Harvester machines.

H. T. Reishus, vice-president of the industrial power division, said the property would provide approximately 9,300 acres of worked-over lands on which the company's crawler tractors and construction machinery will be tested.

The Rust-Oleum Corporation of Evanston, Ill., which has manufactured rust-preventives for over 25 years, announced the addition of two new industrial distributors to its nation-wide distributor sales organization. The newly-appointed firms are the Griswold-Sohl Automotive Company, 232 North Fourth Street, Columbus 15, Ohio, and Mill Supplies, Inc., Box 2762, Greenville, Miss.

Six Wheels, Inc., Los Angeles, Calif., has changed its corporate name to the Maxi Corp. The trade mark has long identified the company's products and its inclusion in the company name was deemed desirable.

The Maxi Corp. will continue all manufacturing operations and will handle the sales of crane carriers and related parts. The sales of tandem units, winches, and other automotive equipment will be handled by an affiliated company, which has assumed the name of Six Wheels, Inc.

The Construction Machinery Division of the Chain Belt Company recently announced the appointment of Richard M. Leek to the newly-created position of Mid-Atlantic district representative. Mr. Leek will be located at 4125 Whitaker Avenue, Philadelphia 24, Pa., and his territory will include Pennsylvania, Virginia, West Virginia, Maryland, Delaware, Washington, D. C., and the southern part of New Jersey.

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THE RIGHT COMBINATION OF DRILLING TOOLS
BRUNNER & LAY OFFERS YOU

Contact the Brunner & Lay plant nearest you

Brunner & Lay gives you your choice of several different tool combinations to provide just the right drilling method for each special drilling problem. One of these combinations can pay off for you in faster drilling, more footage between grinds, less air consumption, continuous drilling of single gage holes. Write for "Guide to Better Footage, Lower Drilling Cost."

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Affiliated plants and warehouses

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Brunner & Lay, Inc. 150 Leslie St. Dallas, Texas

"THIS LUBRICANT CUT OVERHAULS IN HALF"
—says WESTERN AUTO TRANSPORTS, INC.

"Operating over 200 tractors and 200 trailers from Detroit to the West Coast, we encounter temperatures from 120° above across the desert to 40° below in the mountains of Colorado. We have found that with LUBRIPLATE our wheel bearing packing mileage has tripled. Since using Lubriplate A.P.G.-90 in our transmissions and differentials, we are getting double the mileage between their overhauls."

For nearest LUBRIPLATE distributor, see Classified Telephone Directory. Send for free 56-page "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

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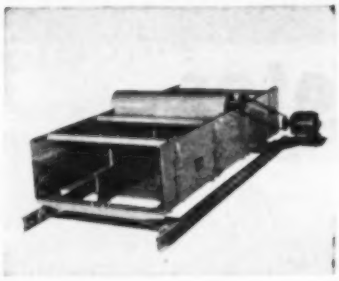
SCREEN WILL GIVE YOU CLEANER AND FASTER SEPARATIONS THAN YOU THOUGHT POSSIBLE!

This fast elliptical stroke at 1800 rpm is working over every inch of the screen deck!



Whether your material is damp or dry, you'll get better results with a Universal. Dozens of new Universal users report increased tonnages with these dependable and economical Screens.

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UNIVERSAL VIBRATING SCREEN CO.

RACINE — WISCONSIN

SYNTRON

GASOLINE HAMMER ROCK DRILLS

Heavy Duty—Self Contained

Easily portable, this powerful unit saves time — cuts costs on many drilling jobs in the quarry.

Deliver over 2000 powerful blows per minute — with automatic drill bit rotation — with exhaust pressure to blow out holes down to 24" — no air compressor nor accessories needed. Portable, economical — cut job time. Write for complete catalog data.

SYNTRON COMPANY

385 Carson Avenue Homer City. Penna.

H. H. Howard

W. K. Cox

Creation of the engine division, a new major component of the company has been announced by L. B. Neumiller, president of Caterpillar Tractor Co., Peoria, Ill. The new division will be managed by H. H. Howard formerly director of domestic sales.

Also announced was the establishment of a sales promotion department with W. K. Cox as manager.

W. S. Zeigler, now assistant director of domestic sales, will manage the domestic sales department succeeding Mr. Howard.

W. S. Zeigler

W. F. Sternberg

Pettibone Mulliken Corp., Chicago, Ill., announces the appointment of W. F. Sternberg as manager of loader manufacturing, with headquarters at the Chicago home office and plant.

In addition to his manufacturing responsibilities, Mr. Sternberg will be in charge of parts distribution and service for the Pettibone line.

Lippmann Engineering Works, Milwaukee, Wisc., has recently appointed the following distributors to handle their line of crushing, screening and conveying machinery. Casey-Metcalfe Machinery Co., 5107 Telegraph Rd., Los Angeles 22, Calif., will include as their territory, the lower half of California; Vancouver Equipment Corp. Ltd., 285 East 1st Ave., Vancouver, B.C., Canada, will cover the province of British Columbia.

Oswald Refractories Company, St. Louis, Mo., has been formed by Harold Oswald and Associates to act as sales managers and special sales representatives for the Alsey Brick and Tile Co., Alsey, Ill.; the Wellsville Fire Brick Co., Wellsville, Mo.; and the Vesuvius Crucible Co., Swissvale, Pittsburgh, Pa. Headquarters of the new firm are at 117 North Meramec, St. Louis, Mo.

Bemis Bros. Bag Co., St. Louis, Mo., has announced the appointment of W. F. Mulvaney as supervisor of multiwall paper bag sales for the entire company.

W. F. Mulvaney

R. W. Koechig

He was formerly sales manager of the bag plant at Peoria, Ill. R. L. Baker, Jr., formerly assistant sales manager, succeeds Mr. Mulvaney as sales manager.

The appointment of K. W. Koechig as supervisor of small paper bag sales has also been announced.

Marion Metal Products Co., Marion, Ohio, manufacturers of dump bodies and hoists, is celebrating its 30th anniversary in the dump body field. Gilbert E. Herr is president and J. L. Halberstein is chairman of the board of directors.

Other key personnel in the organization are: Harold H. Jacobs, sales manager; R. J. Graham, treasurer; A. L. Beach, assistant to the general manager; R. E. Craven, chief engineer; Ray Henninger, purchasing agent; Lester Dickerson, works manager; Sam Birnbaum, traffic manager; and L. E. Oberlander, secretary.

Appointment of Carl R. Rolf as vice-president in charge of sales for Pioneer Engineering Works, Minneapolis, Minn., has been announced by O. J. Ellertson, president.

Baldwin-Lima-Hamilton Corp., Lima, Ohio, announces the appointment of Jack Watson as sales representative of the construction equipment division covering northern Illinois and the lower peninsula of Michigan.

Stephens-Adamson Mfg. Co., Aurora, Ill., announces the formation of the standard products division. This new department will handle the company's line of centrifugal loaders, car pullers, bin level controls, hoists and winches, speed reducers, conveyor belt cleaners, holdbacks, and carriers. These items are now available for immediate shipment from stock.

Ludlow-Saylor Wire Co., St. Louis, Mo. has changed it's corporate name to Ludlow-Saylor Wire Cloth Co. No changes in operations are planned and the present officers and directors will remain.

Sterling Electric Motors, Inc., Los Angeles, Calif., announces the opening of a sales office in Chicago, Ill. Earl J. Phillips has been appointed district manager of the new office located at 1927 North Harlem Ave., Chicago 35, Ill.

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YOUR MANGANAL DISTRIBUTOR

Look to your Manganal Distributor with confidence on all your worn equipment problems. He's a seasoned expert and has a keen interest in getting your equipment back to work fast.

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Manganal is the time-saver and money-saver that rebuilds and repairs worn equipment faster, more economically. Prove it to yourself on that next job. You'll be glad you did.

- APPLICATOR BARS • WEDGE BARS
- SPECIAL SHAPE APPLICATOR BARS
- HOT ROLLED PLATES • SPECIAL TITE-KOTE AND BARE WELDING ELECTRODES
- SEACO HARD SURFACING WELDING ELECTRODES

Send for FREE helpful tips on speedy and economical repair of worn equipment. Also FREE Manganal Wall Chart. •

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SOLE PRODUCERS 92 N. J. RAILROAD AVE. NEWARK, N. J.

Cut Material Handling Cost

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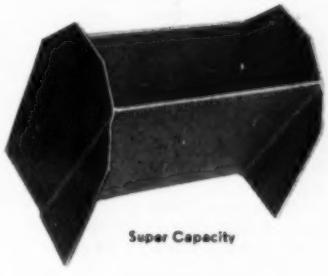
Specify Super-Service STANDARD STEEL ELEVATOR BUCKETS



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STANDARD Steel Buckets "stand up like champions" in resisting abrasion and corrosion.

Rigidly built of top-grade steel. Reinforcing strip may be welded to bucket lip, and hard surface rod added to insure extra service life.

High-economy STANDARD Buckets are available in all styles, types, sizes, and gauges.

We are equipped to furnish new units or recondition present equipment at minimum cost.

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WEIGH WHILE YOU CONVEY

Be sure of your production figures in belt conveying bulk materials. Ideally suited for all producers of lime, cement, sand, gravel and other bulk materials that require handling by belt conveyor.

The Merrick Weightometer accurately and automatically weighs and records a continuous flow of material passing over the conveyor belt without any interruption to the conveyor operation.

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MANGANESE STEEL
Shovel Dippers
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Pulverizer Hammers
Grate Bars—Breaker Plates

Ball Mill Liners
Screen Plates

The Frog, Switch & Mfg. Co. CARLISLE, PA.

ESTABLISHED 1881

Straub Manufacturing Co., Oakland, Calif., has announced the appointment of Contractors Equipment Co., Portland, Ore., as exclusive distributor in Oregon for the Kue-Ken line of jaw crushers, gyracones, ball mills and related machinery.

Hardinge Co., Inc., York, Pa., has announced the election of John J. Cadot as executive vice-president and Robert J. Russell as vice-president in charge of sales. Mr. Cadot continues in his capacity as treasurer and works manager, and Mr. Russell remains corporation secretary and sales manager. Isabel R. Childs was elected assistant secretary of the corporation.

Marion Power Shovel Co., Marion, Ohio, has announced the appointment of Kern-Limerick, Inc., as Arkansas distributor for Marion products. R. C. Limerick is president and Roy L. McDonald, Jr., is sales manager, with offices located at 115 North Spring St., Little Rock, Ark.

St. Regis Paper Co., New York, N. Y., announces the following personnel changes.

Frank W. Myers, Jr., has been appointed assistant manager of the Great Lakes Sales District of the Multiwall Bag Division. He will assist Charles A. Woodcock, vice-president and district manager of St. Regis Sales Corp.

William T. Orr has been appointed supervisor of multiwall bag sales in the St. Louis and Kansas City territories. Working with Mr. Orr will be Robert P. Worden and Thomas A. Patterson, who will handle the sales in the Kansas City area, and W. Malcolm Lowry and Clifford E. Freeman, sales representative in the St. Louis area.

Jack A. Larigan will be supervisor of multiwall bag sales in the Minnesota, Iowa, North Dakota, eastern South Dakota and northern Wisconsin territories, with headquarters in Minneapolis, Minn. He will be assisted by B. F. Alm, representative for Iowa, and eastern South Dakota, and William H. Foran representative for Minnesota, North Dakota, and northern Wisconsin.

The election of I. Melville Stein as president of Leeds & Northrup Co., Philadelphia, Pa., was announced by the board of directors. Mr. Stein, formerly executive vice-president, succeeds Charles S. Redding, who becomes chairman of the board.

D. H. Schultz, who has been secretary and treasurer succeeds Mr. Stein as executive vice-president, retaining the duties of treasurer. George W. Tall, Jr., vice-president will take over the additional post of secretary.

Allis-Chalmers, General Machinery Division, has recently named L. S. Appleton and E. K. Morton as sales representatives to the New Haven and Boston district offices. Mr. Appleton came to Allis-Chalmers in 1951. Before joining Allis-Chalmers, in 1950, Mr. Morton was employed by the Old Colony Crushed Stone Co.

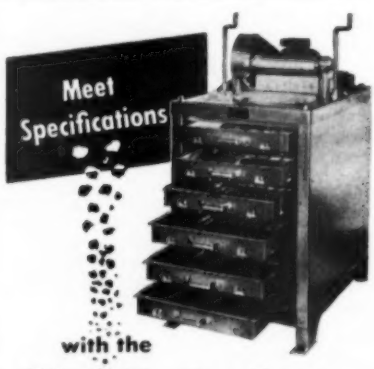
J. D. Hayes

C. W. Ballard

The appointments of Jack D. Hayes, Jr., as director of operations and Clarence W. Ballard as director of sales for the explosives department of Hercules Powder Co., Wilmington, Dela., have been announced.

Mr. Hayes, manager of explosives operations since 1947, succeeds Harry V. Chase. Mr. Ballard, manager of the company's sales office in Pittsburgh, Pa., succeeds LeRoy Keane. Mr. Chase and Mr. Keane were recently named assistant general managers.

Cummins Rio Grande Sales and Service, Inc., has been organized to handle the former Albuquerque, N. M., and El Paso, Tex., operations of Cummins & Moran, Phoenix, Ariz. Headquarters for sales and service are at 1921 North Broadway, Albuquerque, N. M., with a branch operation at 600 Cole Street, El Paso, Tex.



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The GILSON Screen cuts out error and guesswork in meeting sizing specifications for crushed stone, gravel, slag, coal, ores, and similar materials.

You can own and maintain a GILSON Screen for only 65-cents per 1,000-tons production in your plant, according to our sales and service records.

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6. Few moving parts
7. Sturdy construction
8. Size range 4" to 200-mesh

GILSON SCREEN CO.
BOX 186 • MERCER, PENNA.

LeTourneau-Westinghouse Co., Peoria, Ill., announces the appointment of the Atlantic Tug & Equipment Co. as distributors for the company's products in northeastern New York state. The company has their main office at 1801 East Erie Blvd., Syracuse, N. Y., with a branch at Whitesboro, N. Y.

Chain Belt Co., Milwaukee, Wisc., announces the purchase of Shafer Bearing Corp., Downers Grove, Ill. The new addition will operate as the Shafer Bearing Division. The Shafer line of industrial roller bearings will supplement the Chain Belt line of sprocket chains for power transmission and conveying.

R. P. Tennes, former president, becomes the division manager of the new division with M. J. Tennes, Jr., factory manager; H. E. Tennes, sales manager; A. H. Williams, chief engineer. H. R. Lucas, controller; and Gordon Terris, director of distributor sales.

At the same time, two executive changes were announced by Chain Belt. J. C. Merwin has been elected chairman of the board and L. B. McKnight was elected president and chief executive officer.

Chain Belt also announces the opening of a new warehouse at 4125 Whitaker Ave., Philadelphia 24, Pa., headed by William Sivyer, district sales manager. At the same address will be a newly created Rex Construction Machinery office under Richard M. Leek.

C. M. Donahue

E. G. Sanner

Mine Safety Appliances Company, Pittsburgh, Pa., manufacturers of safety equipment, has announced the election of two new vice-presidents: C. M. Donahue and E. G. Sanner.

Mr. Donahue has been associated with the company since 1927, becoming manager of the mining department in 1946 and of the International Division in 1950. He is also a director of Mine Safety Appliances Company of Canada, Ltd.

Mr. Sanner has been with the company since 1920, and in 1949 was appointed manager of manufacturing. Mr. Sanner is also vice-president and a director of Callery Chemical Company.

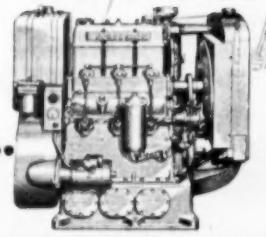
Chicago Pneumatic Tool Co., New York, N. Y., announces that it has acquired the assets of the Jacobs Manufacturing Company, West Hartford, Conn., manufacturers of Jacobs Chucks. Manufacturing and sales operations will not be effected by the sale.

12 POWER COMBINATIONS

available with

NORDBERG DIESELS

CHECK LIST



1 - 2 and 3-cylinder models for 4 types of service

1. For MAIN or STANDBY ELECTRIC SERVICE . . . Your choice of 1, 2 and 3-cylinder units, providing from 6 to 30 K.W. (6,000 to 30,000 watts) in Direct and Alternating Current—50 and 60 cycles.
2. For STRAIGHT POWER TAKE-OFF . . . Your choice of 1, 2 and 3-cylinder units, with stub shaft power take-off to meet power needs from 10 to 45 hp.
3. For CLUTCH-POWER TAKE-OFF . . . Your choice of 1, 2 and 3-cylinder units, from 10 to 45 hp, with twin-Disc clutch power take-off.
4. For PUMPING SERVICE . . . In 1, 2 and 3-cylinder units for connecting to pump shafts—for electric pumps—or with close-coupled centrifugal pumps—in capacities from 200 to 3000 gpm at 15 to 240 ft. total head.

With 12 basic power combinations, Nordberg Diesel units offer you an extremely wide selection to help you get exactly the right kind of power to meet your specific requirements.

NORDBERG MFG. CO., Milwaukee, Wis.

NORDBERG

BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY-DUTY DIESELS

— MAIL THIS COUPON TODAY —

Nordberg Mfg. Co., Milwaukee, Wis.

Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service: P.O.

.....

Your Name .....

Company Name.....

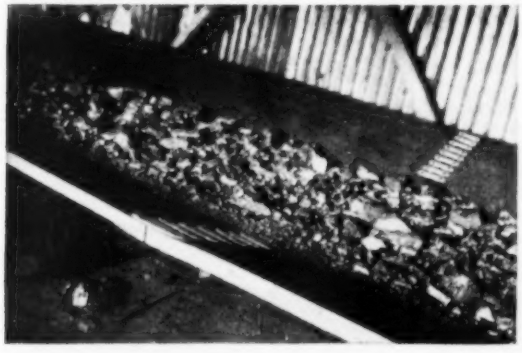
Address .....

City..... Zone.... State.....

4-453

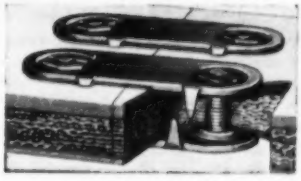
FLEXCO®

BELT FASTENERS and RIP PLATES



FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
- ★ Trough naturally, operate smoothly through take-up pulleys.
- ★ Distribute pull or tension uniformly.
- ★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.



Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

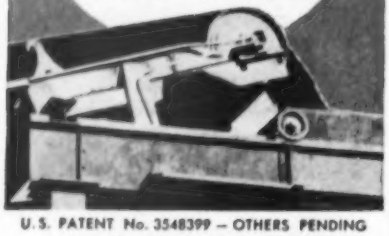
FLEXIBLE STEEL LACING CO., 4623 Lexington St., Chicago 44, Ill.

Cedarapids

Built by IOWA

Schrock

MOTORIZED HEAD PULLEYS Slash CONVEYOR DOWNTIME 70% to 90%



U.S. PATENT No. 3548399 – OTHERS PENDING

HERE'S WHY!

- No chains, sprockets, sheaves, out in the weather and dirt!
- No chain idlers to keep adjusted or oiled!
- No V-belts to be continually checked, adjusted and replaced!
- No shafts and drives to service and lubricate!
- No motors exposed to damage or weather!

Everything CONTAINED within the pulley!

IT'S *motorized* to eliminate expensive upkeep and cut downtime to the barest minimum on all belt conveyor or belt-bucket elevator operations. *All moving parts are inside the pulley,* enclosed and protected by the pulley shell from weather, dirt and damage. Operation is simple...the pulley shell rotates around the electric motor and reduction gears, which are held stationary by a torque arm attached to conveyor frame. Compact, easy to install, *economical* . . . get complete details from your nearest distributor, or write for Bulletin MP-1 today!

Built for sale in Arizona, California, Nevada, New Mexico, Southern Oregon, Southwestern Utah and Texas by

YUBA MANUFACTURING CO.
(Pulley and Sprocket Department)
Benicia, California

IOWA
MANUFACTURING COMPANY
Cedar Rapids, Iowa, U.S.A.

Hammond Bag & Paper Co., Wellsburg, West Va., has announced the appointment of D. E. Tobey as special representative. Mr. Tobey will maintain headquarters in Kansas City, Mo., representing the company in western Missouri, Kansas, Nebraska and Colorado.

Chase Bag Co., Chicago, Ill., announces the appointment of Harrison B. Rue to branch manager of the company's Buffalo, N. Y. branch.

A new district sales office and warehouse has been opened in New Orleans, La., at 7930 Palm Street by the Wickwire Spencer Steel Division of Colorado Fuel and Iron Corp. Ford L. Brooks has been appointed district manager.

Gerald L. Duffy has been appointed district representative for the eastern United States and Canada by Preco Incorporated, Los Angeles, manufacturers of Back-Rippers and Dozer-Rippers for tractor bulldozers. Mr. Duffy will work out of Harwich, Mass.

Koehring Company of Milwaukee, Wis., has recently appointed the Tri-State Equipment Company of El Paso, Tex., as distributor for the complete Koehring line of heavy-duty construction equipment, along with the products of three Koehring subsidiary companies, C. S. Johnson, Kwik-Mix, and Parsons Companies.

E. J. Brady, president of the Alloy Rods Company, York, Pa., announced that construction had started on a new plant of the company located in El Segundo, Los Angeles County, Calif. The new plant, to be known as the Pacific Coast Division of Alloy Rods Company, will produce a complete line of alloy arc welding electrodes to serve the entire Pacific Coast and Rocky Mountain States.

Bucyrus-Erie Co. has recently announced the appointment of Euclid-Arkansas, Inc., North Little Rock, as the new Arkansas distributor for Bucyrus-Erie ⅜- to 4-yd. shovels, dragshovels, draglines, and cranes.

The Detroit Diesel Engine Division of General Motors has announced several changes in the assignments of its field sales and service personnel.

A. W. Anderson, formerly factory sales representative in the New Orleans sales zone, has been transferred to the Los Angeles area in the same capacity. He is succeeded by Ralph Pontius, former factory service representative in the New Orleans territory. Stanley Pillsbury has been assigned to the post vacated by Mr. Pontius.

Other re-assignments announced include the transfer of Charles Howell to the Tulsa sales office. He will serve as assistant to A. F. Campbell, manager of engine sales to the petroleum industry, succeeding E. J. van Dyk. Mr. van Dyk has been transferred to the home office in Detroit as a sales engineering consultant.

SYNTRON

"Vibrating"
TEST SIEVE SHAKERS

Eliminate all Guesswork

Provide definite sizing of test samples

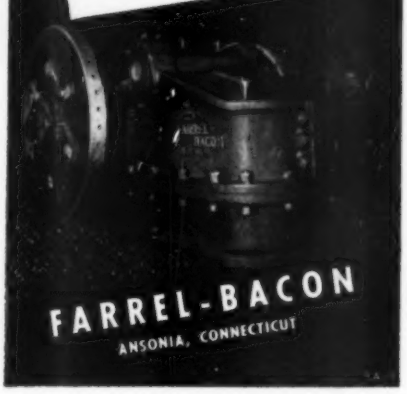
- Use standard 8" Screen Scale Testing Sieves
- A reset timer for accurately timed test periods
- Controlled electromagnetic vibration–no motors, pulleys, etc.

Write Today for FREE Catalog Folder

SYNTRON CO.
385 Curson Ave. Homer City, Pa.

FARREL-BACON JAW CRUSHERS
SIZES 60"x48" to 10"x7"

Optional design features include: (1) Meehanite frame, sectionalized when necessary; (2) removable water-cooled bearings; (3) improved design of swing-jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive. *Write for further details or engineering assistance.*



FARREL-BACON
ANSONIA, CONNECTICUT

New Sinclair Grease for Heavy Duty Equipment

Tests prove New Grease Gives better Lubrication... Longer Life to Bearings

A new Sinclair grease with superior lubricating qualities for bearings of heavy duty equipment is now available. Sinclair HEAVY DUTY BEARING GREASE is specially compounded to *stay put* in heavily loaded, slow speed rotating or sliding bearings.

New Sinclair HEAVY DUTY BEARING GREASE has an exceptionally high load-carrying capacity . . . greater resistance to pounding and shock loads . . . greater resistance to melting out. Operators of power shovels, draglines, tipples, conveyors and all other heavy duty equipment are assured of longer bearing life . . . higher productivity . . . lower operating costs.

Sinclair HEAVY DUTY BEARING GREASE is available in three grades – "0," "1," and "2." It is easily applied with a hand gun or air gun. It comes in 35 pound pails and 100 and 400 pound drums.

A Sinclair Lubrication Engineer can give you expert counsel on how you can get the most out of Sinclair's new HEAVY DUTY BEARING GREASE. Phone your local Sinclair Representative or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR HEAVY DUTY BEARING GREASE

ANNOUNCING
THE DU PONT VOLTOHMETER

. . . a triple-purpose precision instrument for testing electric blasting operations

The Du Pont Voltohmeter is an entirely new, all-purpose precision instrument designed for testing in connection with electric blasting. It combines the functions of Du Pont Blasting Galvanometers, and Detect-A-Meters, and offers many other advantages.

1. **As a blasting galvanometer,** the Voltohmeter may be used to measure resistance of electric blasting caps, blasting circuits and firing circuits accurately. One dial setting has a range of 0 to 100 ohms, and another, from 0 to 1000. The scale is graduated for easier, more accurate reading, and a convenient zero-mark adjustment is provided.

2. **As a stray-current detector,** the Voltohmeter offers greater flexibility in detecting, tracing and identifying both AC and DC voltages. Separate scales are provided reading from 0-1.5 volts DC, 0-1.5 volts AC, 0-30 volts DC and AC and 0-600 volts DC and AC.

3. **As a voltmeter,** the new Voltohmeter may be used for testing all power-line voltages commonly used in electric blasting operations, up to 600 volts . . . both AC and DC.

Each Voltohmeter is in a sturdy leather carrying case with shoulder strap and pocket containing two plastic insulated probe wires with insulated alligator clips shown below. An instruction plate and pamphlet are also included. Compact, it measures only 6⅝ x 3⅞ x 4½ inches; weighs only 2½ pounds.

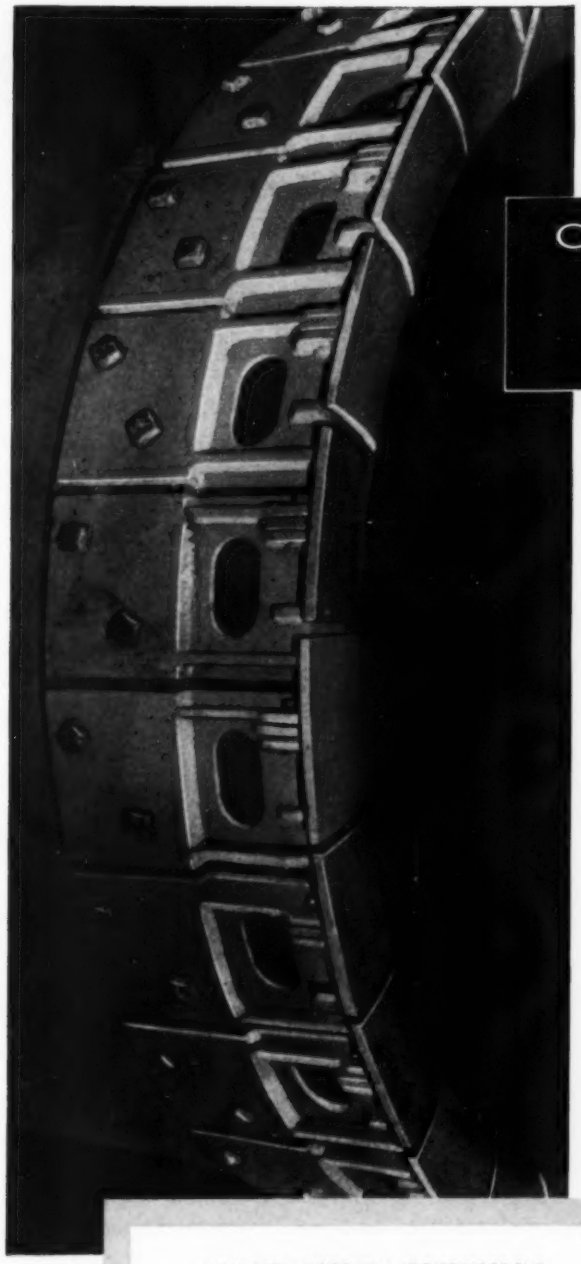
Ask the Du Pont Explosives representative in your district for complete information about this new, highly efficient, triple-purpose instrument for promoting safer blasting. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

DU PONT EXPLOSIVES

Blasting Supplies and Accessories

DU PONT

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*



SEGMENTAL KILN ENDS

CAST IN thermalloy*

Eliminate Warping . . . Reduce Downtime . . . Ease Replacement

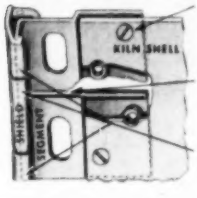
You can lengthen the service life of your kiln when you order segmental kiln ends cast in Thermalloy, a high heat-resistant alloy.

Here's how you save time and money with Thermalloy segmental kiln ends. *Warping is greatly reduced because* (1) segmental design allows for expansion and contraction without permanent set of the kiln shell; (2) segments completely shield the kiln from clinker and flame leakage to a depth of 16½" back from the mouth of the kiln. *Installation is easier* because no special brickwork is needed. *One-man replacement* is made possible by the segmental design . . . the maximum weight to be handled at any one time is 35 lbs.

Call your nearest Electro-Alloys representative and let us show you how to save operating dollars with Thermalloy high alloy castings for kiln ends, feed ends, feed pipes, dampers and other applications in the cement industry. Free illustrated bulletin available upon request to Electro-Alloys Division, 4004 Taylor Street, Elyria, Ohio.

*Reg. U. S. Pat. Off

VIEW FROM INSIDE KILN AT DISCHARGE END



Flush inside surfaces require no special brick work (note countersunk bolts).

Clearance between segments allows for expansion and contraction.

Overlapping shield completely protects end of kiln.

Kiln is protected by high heat resistant Thermalloy, to distance of 16½" back from mouth.

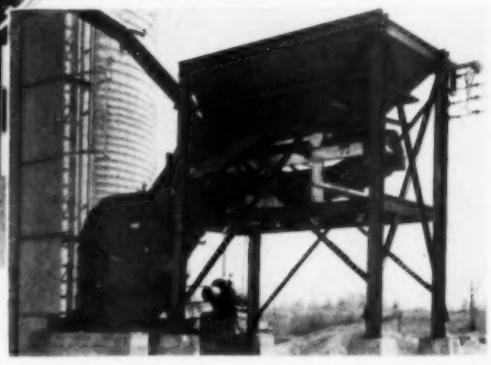
Shield casting protects kiln end from abrasion by clinker. Easily replaced by knocking out pins.

AMERICAN Brake Shoe COMPANY

ELECTRO-ALLOYS DIVISION
ELYRIA, OHIO

a hard-hitting giant

A Rock Buster installation. Apron Feeder under hopper and Bucket Elevator are also part of the Jeffrey equipment in this plant.



JEFFREY PRIMARY IMPACT-TYPE

ROCK BUSTER

Today's smash hit in stone, cement, carbon, calcium carbide, steel and related industries, is this powerful Jeffrey Crusher. Manganese hammers reduce hard, friable, non-abrasive materials to a cubicle product of market size. Simple, efficient *one-rotor* construction gives greatest possible reduction *in one pass*. In many cases one Rock Buster replaces both primary and secondary crushers of conventional design.

TOP PERFORMANCE — LOWER UPKEEP
EASIER MAINTENANCE

Rock Buster users report big advantages over older types of equipment in crushing efficiency and operating economy. Product size can be adjusted by changing speed of rotor, spacing of rods, distance between cast-manganese rings and periphery of rotor. Rock Busters are available in two sizes. Type 303 has a feed opening 30″ square. Type 404 has a 40″ opening.

Jeffrey Bulletin 854 gives full details.

THE JEFFREY MANUFACTURING CO.

ESTABLISHED 1877

Columbus 16, Ohio

sales offices and distributors in principal cities

PLANTS IN CANADA, ENGLAND, SOUTH AFRICA

IF IT'S MINED, PROCESSED OR MOVED
. . .IT'S A JOB FOR JEFFREY!

8 months extra service with the right brick!

THE superiority of Permanente Periclase-Chrome brick—the brick on the right—is demonstrated by its performance in rotary cement kilns in five plants selected at random from our customer list.

The brick on the left, previously used in the hot zone linings, gave approximately 2 months average service. With Permanente Periclase-Chrome brick, the average service jumped to 10 months!

This eight months extra service increased annual capacity an average of 12,935 barrels per kiln. Annual net profits went up an average of $3,880. In addition, important savings were realized through reduced cost of materials for relining.

Whatever *your* current kiln capacity, it probably can be increased with Permanente Periclase-Chrome brick, because they are *especially designed* for hot zone linings. If an appraisal of your kiln performance would be helpful, Kaiser Chemicals will be glad to work with you.

SEND FOR BOOKLET giving installation procedures and for literature explaining all the advantages of Permanente Periclase-Chrome bricks. Standard brick sizes available, both burned and chemically bonded. Installation service at no extra cost. Complete facilities insure superior service. Call or write principal sales offices: *Chemical Division*, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.

Kaiser Chemicals

Pioneers in Modern Basic Refractories

Basic Refractory Brick and Ramming Materials • Dolomite • Magnesia • Magnesite • Alumina • Periclase

THE ONLY MODERN FRONT END ... ON QUARRY SHOVELS

110-B, 4½ cu. yd.
150-B, 6 cu. yd.
190-B, 8 cu. yd.

Convertible Shovels — Draglines

THE new Bucyrus-Erie Ward Leonard electric shovels bring to quarry loading the first important departure from the old-fashioned shovel front end. This advanced design — with two-section boom, inside tubular handle, and quiet positive rope crowd — increases speed and payload. It reduces upper boom weight, puts extra strength in the lower section where maximum strength is needed. It cuts out old-style handle racking and crowd pinions, takes the deadweight of crowd machinery off the boom. And, most important to *you*, it gives you all these field-proven performance advantages:

- **Lighter Weight, Greater Strength** — Two-section boom, with light upper section . . . lower section strut-connected to the A-frame.
- **No Handle Twist** — Inside tubular dipper handle is free to rotate in rubber-cushioned saddle block.
- **No Handle Binding in Saddle Block** — Rope crowd is quiet, positive, eliminates handle racking and crowd pinions.
- **No Dipper Wobble** — Twin dual hoist ropes put hoist power where needed for steady travel of dipper through bank.
- **No Sway Braces** — Widespread boom feet eliminate accessory boom braces or cables.
- **Low Swing Loads** — Advanced front end design, with crowd machinery on deck, cuts dead load on swing, steps up swing speed.
- **High Pay Loads** — Single tubular handle — with improved dipper back connections, dipper trip on saddle block, no dipper bail — reduces dead load on hoist, leaves more power for digging.

311-53C

There's much more to the story, too. Deck machinery, electrical equipment, and mounting all match the front end in advanced engineering and outstanding performance advantages. The full story will convince you that yard for yard, dollar for dollar, pound for pound, these are the finest rock excavators ever built.

Write for Complete Information Today!

BUCYRUS ERIE

BUCYRUS-ERIE COMPANY SOUTH MILWAUKEE, WISCONSIN

Now! A new "break" for the driver

. . . is a "break" for your delivery costs! The world's most comfortable truck cab cuts driver fatigue!

Keeping the driver happy by reducing driver fatigue is not the only virtue of the new Ford Truck DRIVERIZED CAB.

Easier driving, for example, means safer driving! Easier driving means greater efficiency in terms of more trips, more stops, more deliveries per day—which means a more profitable operation.

The new Ford Truck DRIVERIZED CAB is just one of many new *time-saving* features that help *get jobs done fast!*

For sustained speed travel, Ford provides new LOW-FRICTION power in V-8 or Six. For faster, easier handling, Ford provides Synchro-Silent transmissions in every model—and new "short-turn" front axles.

Both Standard and Deluxe DRIVERIZED CABS offer all the features mentioned on this page. See your Ford Dealer for full details.

DRIVERIZED DELUXE *cab shown in photos available at slight extra cost.*

SWING *open the new, wider doors!* Door handles are the easy-operating push-button type . . . like you get in quality cars. Door latches are new rotor-type.

HOIST *your size 12's into the cab!* Plenty of room between the seat and door pillar. No need to do a toe dance getting into or out of a Ford "DRIVERIZED CAB!"

SLIDE *into the wide, comfortable seat.* Bounce on it to test the super-cushioning action of Ford's exclusive *seat shock snubber* and new non-sag springs.

SWEEP *your eyes across the new one-piece windshield.* With picture-window visibility like this you can really navigate. Safer driving, of course! Less eye-strain!

GLANCE *back through the 4-ft. wide rear window.* Heads right or left, you can see the space you're backing into. Why pay extra for rear quarter windows?

STRETCH *your arms into big cab roominess.* With more hip-room than any of the 5 other leading makes, FORD DRIVERIZED CABS banish that "squeezed-in" feeling.

New F-900 BIG JOB has a 27,000-lb. G.V.W. rating for extra heavy hauling work. LOW-FRICTION 155-h.p. Cargo King V-8 offers high sustained torque to give more performance flexibility for your heaviest loads.

FORD ECONOMY TRUCKS

SAVE TIME! SAVE MONEY! LAST LONGER!

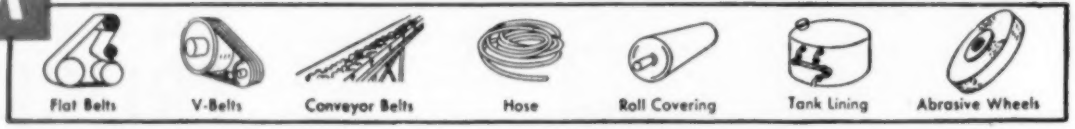
Ray-Man "F" Conveyor Belt—More use per dollar
Ray-Man "F" Conv e use per dollar
Ray-Man " dollar
Ray-M per dollar
Ray-Man "F" Co e use per dollar

ON ABUSIVE HAULS... Ray-Man "F" will cut costs where your conveyor belts are commonly exposed to tearing or puncturing . . . where pulleys are small . . . where fastener failure is a particular problem. The unique properties of synthetic fiber strength members make possible these advantages. Ray-Man "F" also gives you everything you require in a general purpose belt—flexibility, troughability, impact resilience, ease of training, strong cover adhesion—MORE USE PER DOLLAR. Ask the R/M distributor for Bulletin 6915. Ask him, too, about Homocord, R/M's extra-cushioned conveyor belt for heavy impact loading. R/M field engineers back him up to give you MORE USE PER DOLLAR—not only in conveyor belts, but in hose, transmission and V-belts.

R/M

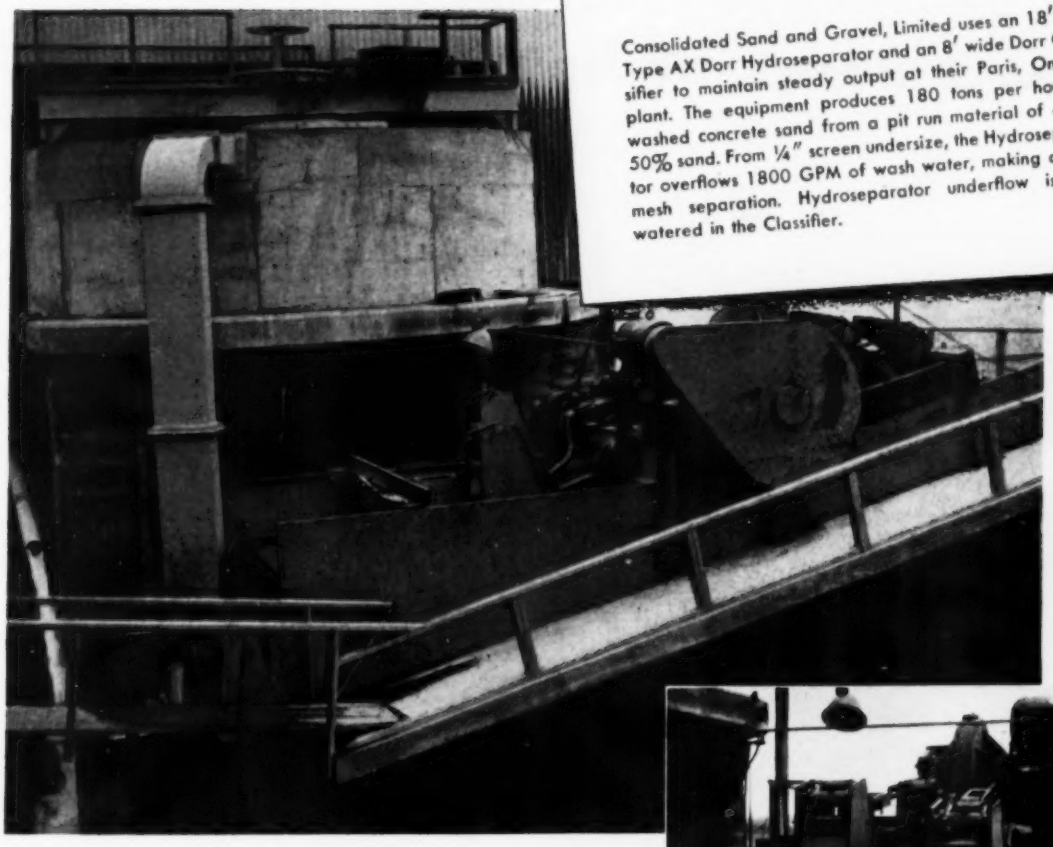
MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

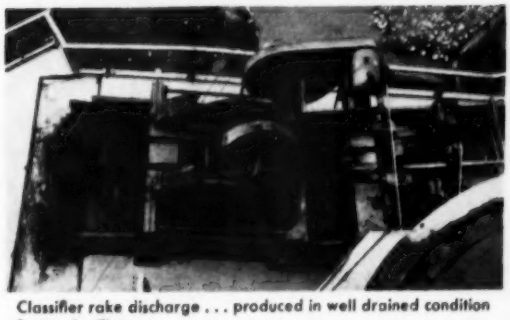


Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Packings • Brake Linings • Brake Blocks Clutch Facings • Asbestos Textiles • Sintered Metal Parts • Bowling Balls

Consolidated Sand and Gravel, Limited uses an 18′ dia. Type AX Dorr Hydroseparator and an 8′ wide Dorr Classifier to maintain steady output at their Paris, Ontario plant. The equipment produces 180 tons per hour of washed concrete sand from a pit run material of 40 to 50% sand. From ¼″ screen undersize, the Hydroseparator overflows 1800 GPM of wash water, making a 150 mesh separation. Hydroseparator underflow is dewatered in the Classifier.



View of overflow end of Dorr Classifier.



Classifier rake discharge . . . produced in well drained condition for stock piling.

In Canada, too...

Steady Sand Production

—year in and year out

Whether your tonnage requirements are large or small, Dorr equipment keeps your production going. When you want equipment that *stays on the job* and keeps you away from high maintenance costs, get in touch with Dorr.

Ask a Dorr engineer for the facts about equipment scaled to fit your specific needs. THE DORR COMPANY, Stamford, Connecticut. *In Canada:* 26 St. Clair Ave. E., Toronto 5.

DORRCO

Better tools TODAY to meet tomorrow's demand

DORR

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

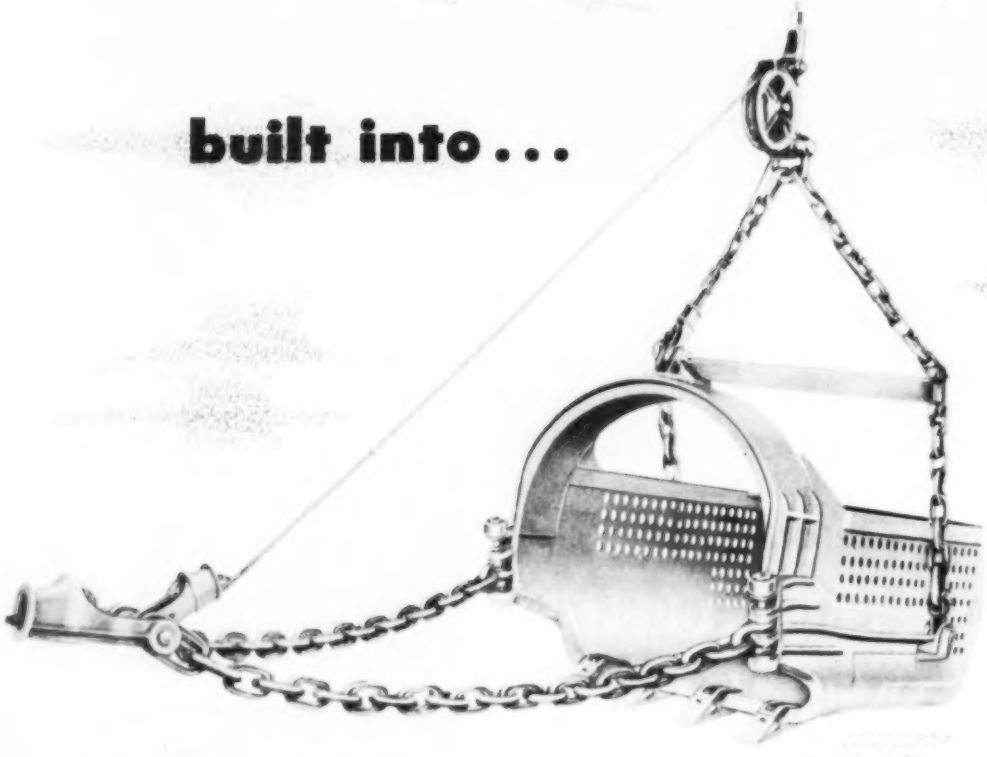
THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.

Offices, Associated Companies or Representatives in principal cities of the world.

more years of better service

at *lower cost*

built into...



HENDRIX DRAGLINE BUCKETS

3/8 to 40 Cubic Yards

Hendrix Lightweight DRAGLINE BUCKETS

A TYPE AND SIZE FOR
EVERY DIGGING PURPOSE

Hendrix Buckets available without perforations on special order.

HENDRIX MANUFACTURING CO., Inc.

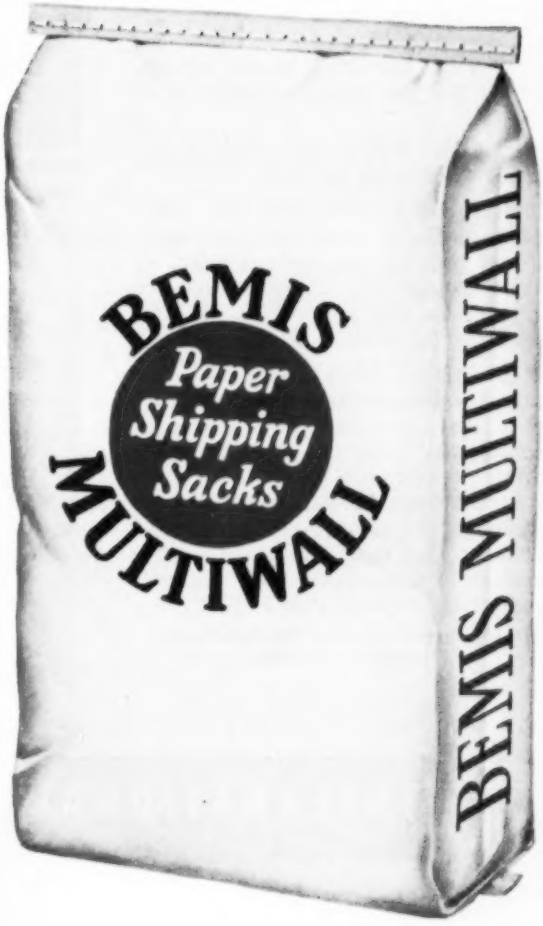
MANSFIELD, LOUISIANA

Want Proof?

then trust your own eyes!

And you will know that Bemis color printing of brands on multiwall paper bags is bright, crisp, color-true . . . the kind that will boost the selling power of *your* brand.

Ask your Bemis Man to show you typical Bemis multiwall printing. Trust your own eyes.



Bemis

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

HIGHER PRODUCTION at HY-ROCK

Two International TD-6s help increase production 300% for Indiana quarry

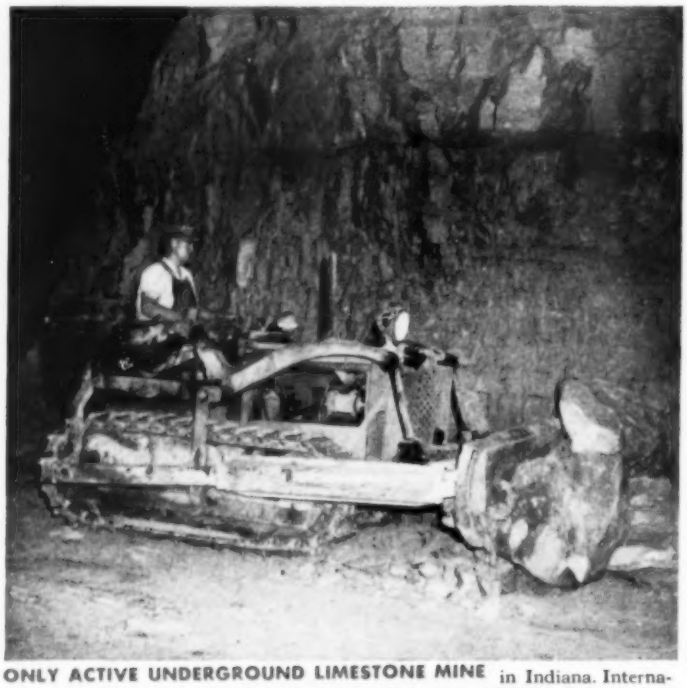
G. W. Bowen, president, Hy-Rock Products Company, Marengo, Indiana, was worried that his TD-6 would be too small for the job when he bought it in 1946.

But he isn't worried now—and he has two TD-6s working for him.

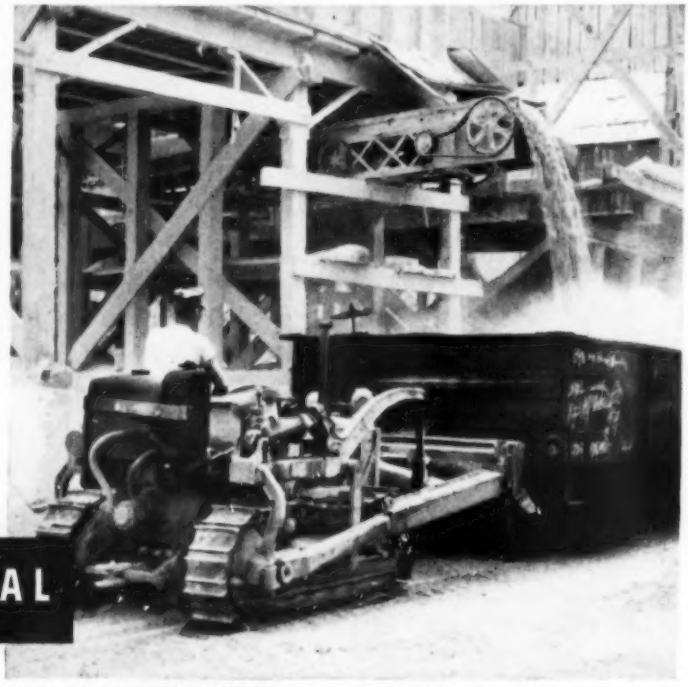
On the go 48 to 52 hours a week, these two Internationals have helped Hy-Rock increase production 300 per cent, to 170,000 tons per year. They handle every heavy job on the surface and dig out limestone a quarter-mile underground.

Want to know more about how International power can help raise your production and lower your costs? See your International Industrial Distributor for the full performance story. Look over his big parts department and his factory-designed service plant. You'll understand why more and more mine and quarry operators are equipping with International for the "Power that Pays."

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



ONLY ACTIVE UNDERGROUND LIMESTONE MINE in Indiana. International TD-6 crawler works a quarter mile underground at Hy-Rock quarry.



TD-6 TURNS LOCOMOTIVE. This rugged little International bosses from one to nine loaded railway cars in addition to handling a host of other jobs below and above the ground.

INTERNATIONAL

POWER THAT PAYS

MARION BODIES AND HOISTS

More Less

The workload capacity of any dump body is directly proportional to the efficiency of the hoist. That's why Marion Hoists turn out *more* work at *less* cost.

You see—Marion Hoists operate at a *low* uniform oil-pressure throughout the dumping cycle . . . regardless of load or dumping conditions. This means less wear and tear on vital parts and a smoother, more dependable dumping operation.

Consequently, Marion owners get more work . . . yet enjoy trouble-free operation, thus cutting maintenance and down time to a minimum.

This is just part of the story, your nearby Marion Distributor can give you *all* the facts and figures . . . or write direct. There's no obligation, of course.

"Designed on the Job"

MARION BODIES AND HOISTS

METAL PRODUCTS CO.
Marion, Ohio, U. S. A.

Manufacturing a complete line of standard and special Hydraulic Hoists and Dump Bodies

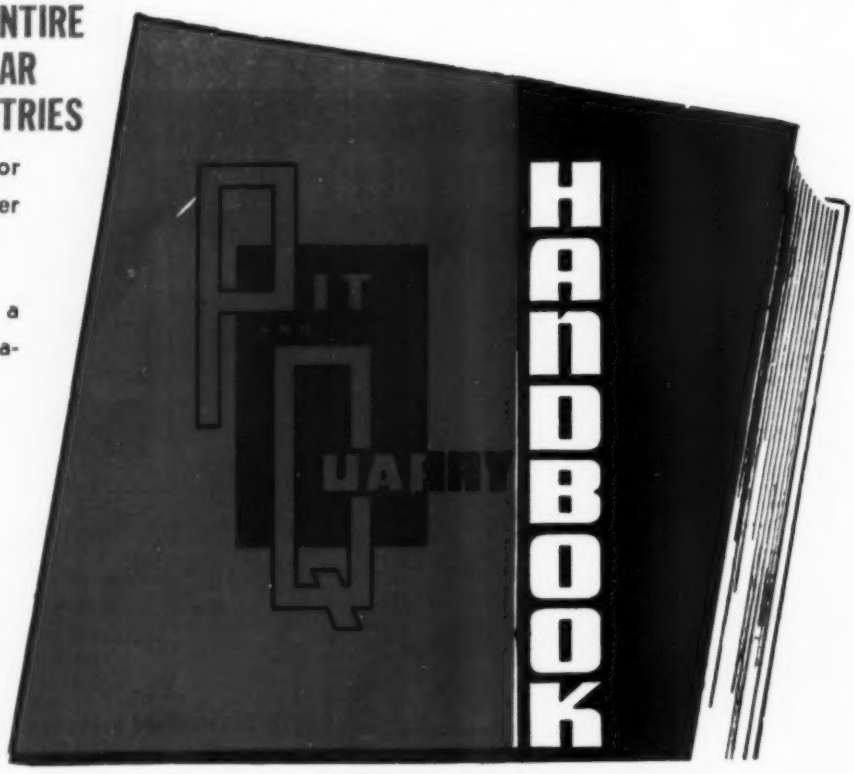
HERE IS YOUR COMPLETE 1953 REFERENCE BOOK

FULLY COVERS THE ENTIRE 2½ BILLION DOLLAR PIT & QUARRY INDUSTRIES

An Indispensable Tool for Both Operator and Supplier of Equipment.

The technical section is a year-round source of information for the producer on design, equipment and operations of pits, quarries, mills and plants. It describes modern methods and machinery in great detail.

The directory section provides an accurate up-to-the-minute list of all known producers of nonmetallic minerals. You get company names, officers, location of plants, their capacity, and the names of the men who do the buying.



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AN AUTHORITATIVE MANUAL
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Bound in durable stiff covers. Opens easily and lies flat.

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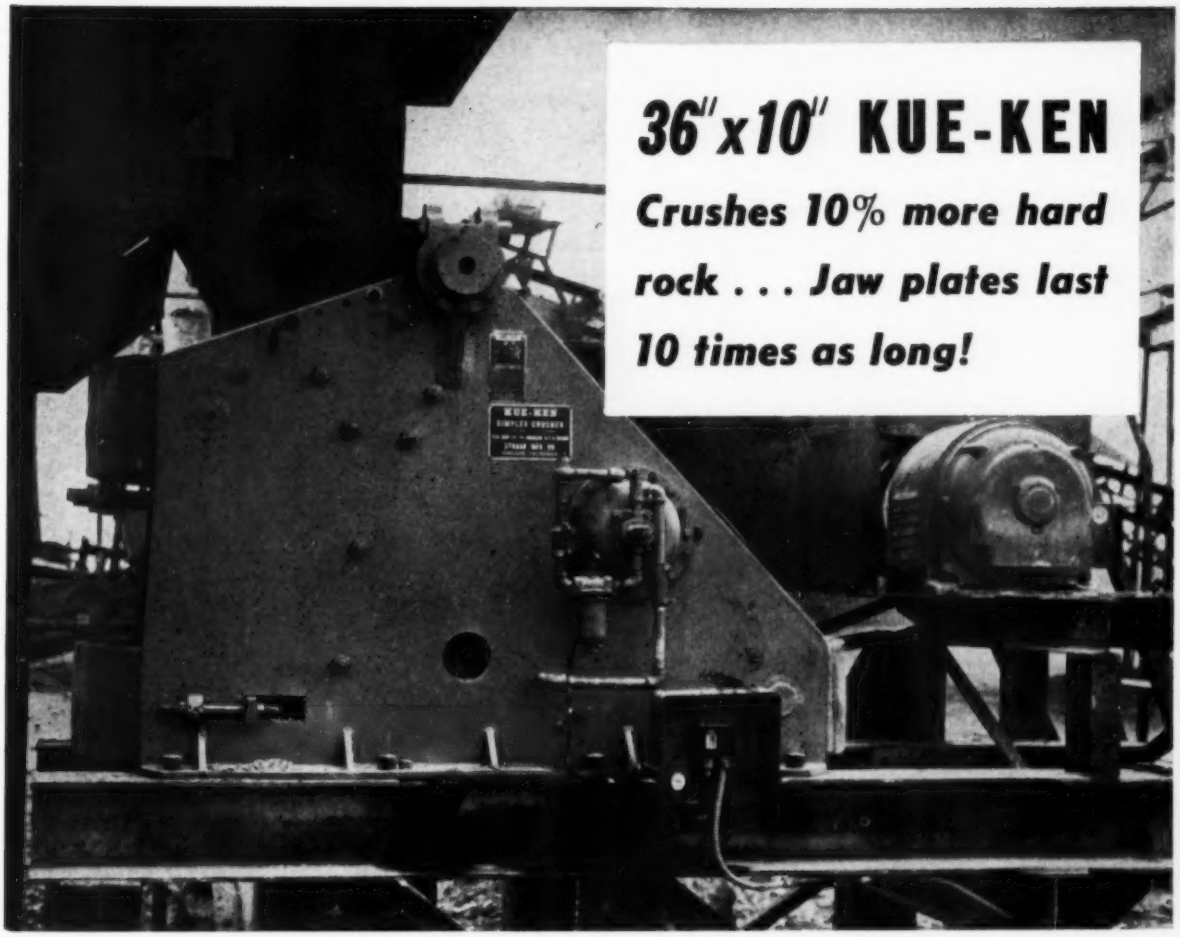
Names.....**Title**.....
Company.....
City.....**Zone**.....**State**.....



36″ x 10″ KUE-KEN

Crushes 10% more hard rock . . . Jaw plates last 10 times as long!

A California Gravel Company* was using a 10″ x 40″ overhead eccentric type crusher. Records show that this crusher required new jaw plates every 30 days. Daily adjustments were necessary to maintain a desired product size because of the rapid wear on the jaw plates.

The Company then purchased a 10″ x 36″ KUE-KEN Crusher. The original set of jaw plates lasted 13 months, or more than 12 TIMES longer than those in the previous crusher. Furthermore, the KUE-KEN's crushing rate is 10% more per inch of jaw width, the crusher runs cool with no lubrication difficulties, and 15% less power per ton is required.

This field report is typical of the many received each month by our Engineering Department. We are justly proud of the job KUE-KEN Crushers are doing all over the world. If you are interested in high-capacity, trouble-free crushing, it will pay you to investigate KUE-KEN today.

*Name furnished on request.

See your dealer or write for factual illustrated data.

KUE-KEN pronounced "QUE-KEN"
U. S. and foreign patents pending

DEALERS: LUND MACHINERY CO., Salt Lake City, Utah; CLOSNER EQUIPMENT CO., San Antonio, Texas; WASHINGTON MACHINERY & STORAGE CO., Seattle, Wash.; CONSTRUCTION EQUIPMENT CO., Spokane, Wash.; CONTRACTORS EQUIPMENT CO., Portland, Ore.; MILLER MACHINERY CO., Missoula, Mont.; ANAHUAC MACHINERY CO., Mexico City, Mexico; UNIVERSAL EQUIPMENT CO., Vancouver, B. C.

642 CHESTNUT STREET • OAKLAND 20, CALIF.

STRAUB MFG. CO.

Kue-Ken Jaw Crushers	Revolving Screens	Rib Cone Ball Mills
Kue-Ken Gyracone Crushers	Classifiers	Concentrating Tables
Overhead Eccentric Crushers	Feeders	Vibrating Screens

Pennsylvania Crusher Co., Exclusive Licensed Eastern Manufacturer and Distributor. Broad and Arch Streets, Philadelphia, Penn.

Sir W. G. Armstrong Whitworth & Co. (Ironfounders) Ltd. Authorized Licensed Manufacturer and Distributor. Close Works, Gateshead-upon-Tyne, England.

STONE HANDLING!

These are tough jobs—requiring sturdy equipment for long life and uninterrupted service.

That's why these operators specify **Continental**

OTHER PRODUCTS: Elevators, Feeders, Screw Conveyors, Pulleys, Trippers, Buckets, Sprockets, Takeups and Bearings.

For detailed information on these idlers, write for Bulletin P.Q.-116

INDUSTRIAL DIVISION

CONTINENTAL GIN COMPANY

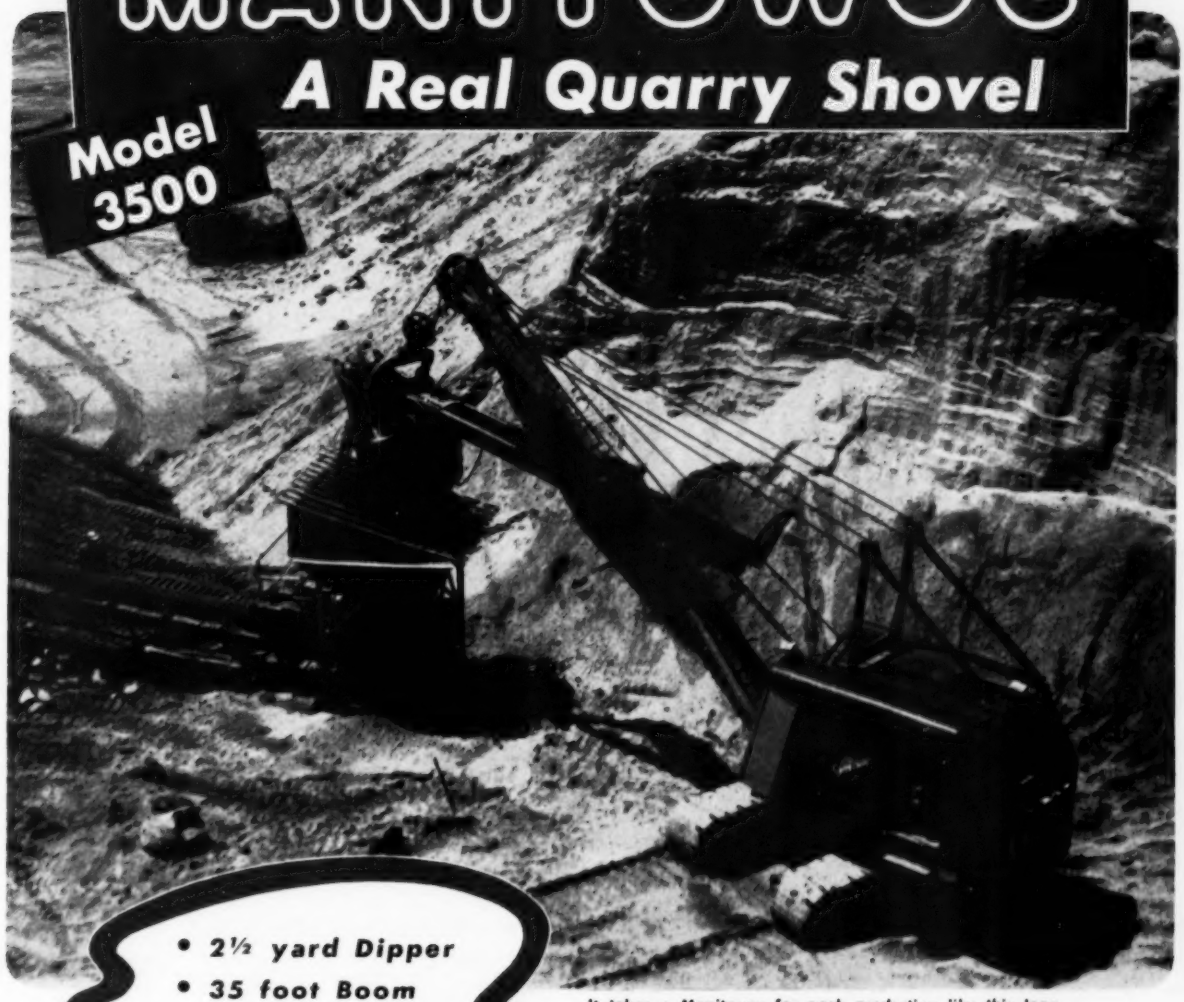
BIRMINGHAM, ALABAMA

ENGINEERS CGC ATLANTA • DALLAS • MEMPHIS • NEW YORK CGC MANUFACTURERS

MANITOWOC

A Real Quarry Shovel

Model 3500



- 2½ yard Dipper
- 35 foot Boom
- 27 foot Sticks

It takes a Manitowoc for peak production like this long reach, high lift Model 3500 operating for Colonial Sand and Stone Co. of New York.

This Manitowoc 3500, operating for Colonial Sand & Stone Co. of New York, is a real producer, loading over 350 yards per hour from bank to hopper.

Its "hi-lift" 35′ boom, and long 27′ sticks enable it to reach out far and high, then swing over to the hopper, without frequent moving and traveling. The long boom also provides additional protection against slides, since the shovel can stay farther away from the bank. All these advantages without sacrifice of bucket capacity, account for more yardage with this Manitowoc.

There are many other exclusive Manitowoc features which put real money in your pocket — features such as fewer working parts, simpler design, more rugged construction, torque converter drive, fast operating cycles, simplified servicing and far easier operation.

Before you invest in any other crane, shovel or dragline, get complete details on the full line of Manitowocs. Manitowoc Engineering Corp., Manitowoc, Wis.

MANITOWOC Speed Crane

SHOVELS 1-5 YD. CRANES 18-100 TON

No Blinding!

...SCREENING MOIST PULVERIZED LIMESTONE

ALLIS-CHALMERS

THERMO-DECK Heating Unit

No blinding on this *Ripl-Flo* screen handling moist limestone.

This is what happened on the same screen when we turned the *Thermo-Deck* heating unit off for half an hour.

Thermo-Deck heating units can be applied to your Allis-Chalmers screens in the field. For more facts, call the A-C representative in your area or write for Bulletin 07B7812. Allis-Chalmers, Milwaukee 1, Wisconsin.

SCREENS MOIST, FINE MATERIALS . . . with no "time out" to clear the screen cloth. Low voltage resistance heating keeps screen mesh free of blinding.

HEATED CLOTH LASTS 3 TIMES AS LONG! Clear screen cloth carries less weight than blinded cloth; has less tendency to whip. Damage resulting from pounding or brushing is greatly reduced.

SCREENING CAPACITY INCREASED 2 WAYS! More tonnage goes through the screen when cloth *remains* open. And, with no downtime to clear the screen, more tonnage goes through per day. A-3935

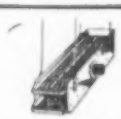
Thermo-Deck and *Ripl-Flo* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

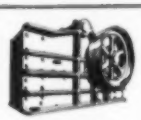
A-C ALLIS-CHALMERS

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Hammermills

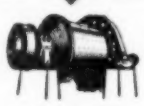


Vibrating Screens



Jaw Crushers

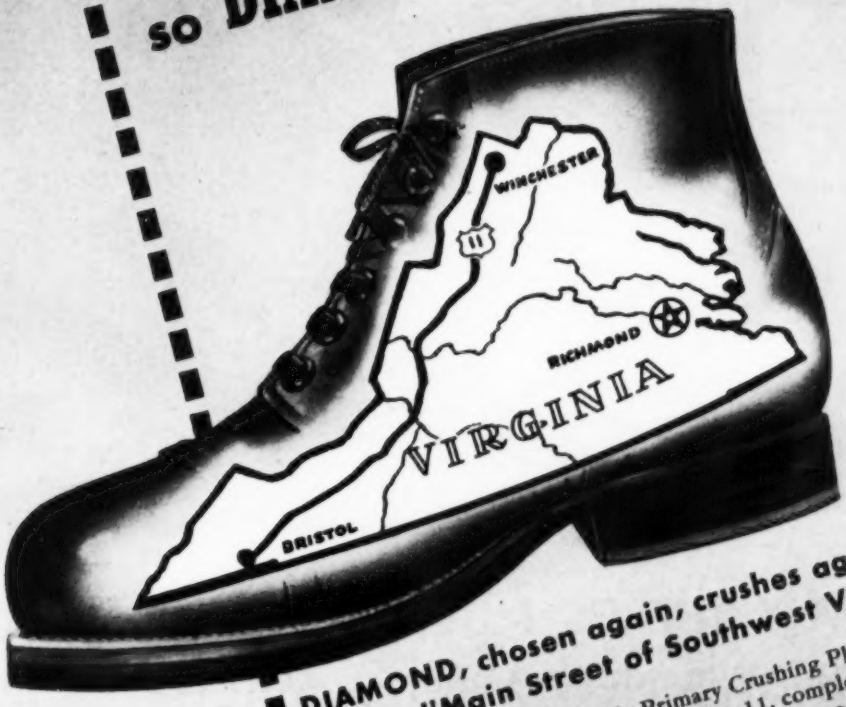
Gyratory Crushers



Grinding Mills

Kilns, Coolers, Dryers

the shoe fits...
so DIAMOND'S wearing it!

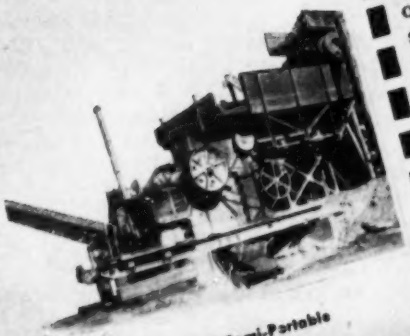


DIAMOND, chosen again, crushes aggregate for the "Main Street of Southwest Virginia"

A Diamond #24 Semi-Portable Primary Crushing Plant was called on to crush the aggregate for U.S. Route 11, completing another section of four-lane divided roadway and closing one more inter-city gap north of Lexington. Diamond was a "natural" choice to work on the 340 mile strip, second longest and busiest highway in Virginia. The really tough jobs *always* go to Diamond.

Skid-mounted, Diamond's #24 carries a 24" x 36" Jaw Crusher; 3' x 10' Apron Feeder; and a laminated steel and oak lined folding hopper. Power unit is International Diesel. A 30" Wide Diamond Conveyor carries the aggregate away from the Crushing Plant to a screening plant located on top of a set of bins.

Specify Diamond and Be Sure



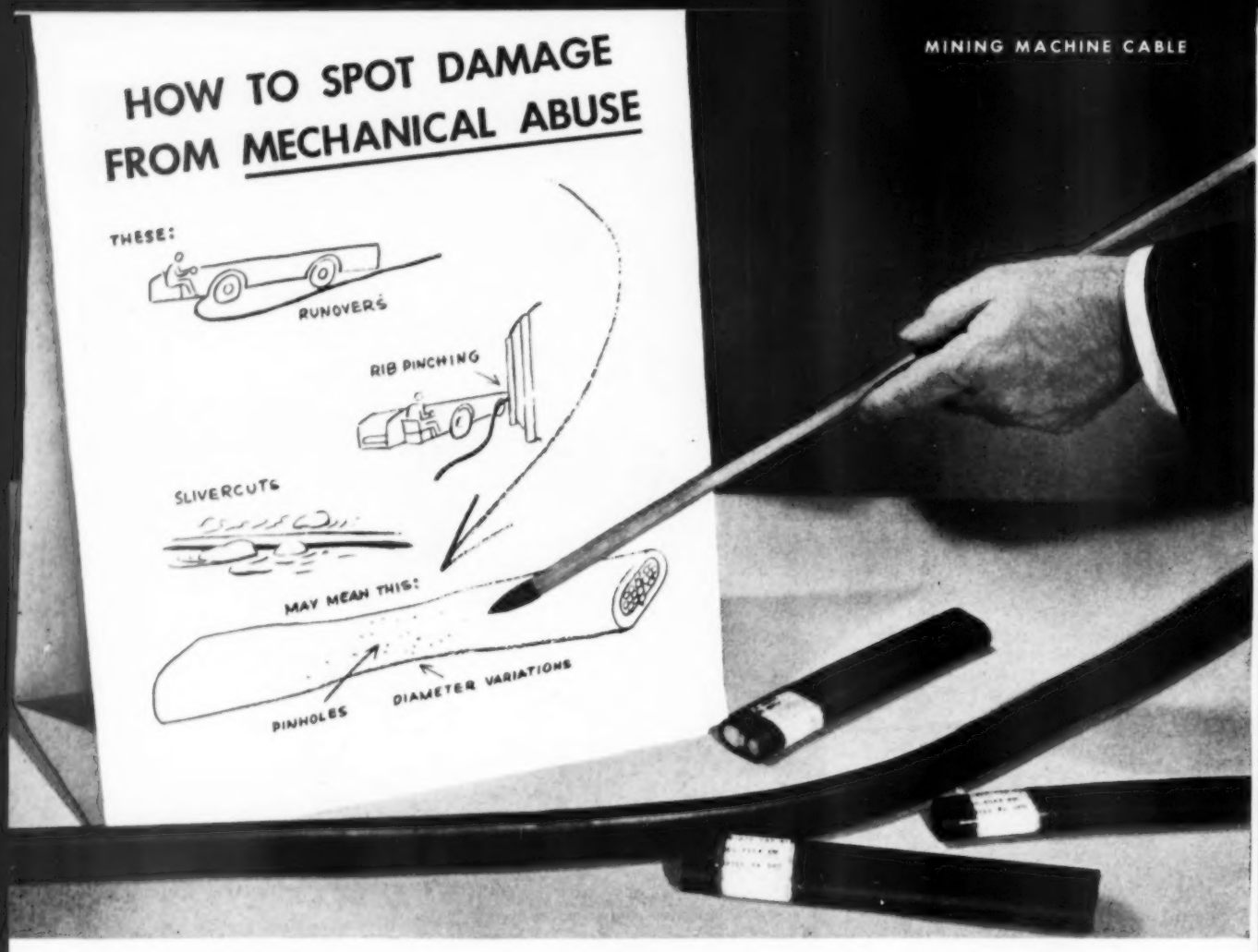
Diamond #24 Semi-Portable Primary Crushing Plant

DIAMOND IRON WORKS, Inc.

AND THE MAHR MFG. CO. DIV.

1756 NORTH 2ND STREET • MINNEAPOLIS, MINN

MINING MACHINE CABLE



. . . AND WHY THERE'S MUCH MORE TOUGHNESS IN ANACONDA'S NEW MINING MACHINE CABLE

Your naked eye can't spot diameter differences in new cables. That's why it's important to check promptly when you *do* see variations in cable after it's been used. It has probably been crushed . . . by runovers or rib-pinching. Compression cuts may let in moisture *to shorten cable life.*

HOW TOUGH SHOULD CABLE BE?

As tough as we can make it—regardless of cost. One break in a cheap cable costs more than you can save by buying on price. The new ANACONDA Cables mean lower costs to you because they can take much more abuse. In fifteen mines recently surveyed, the average life of ANACONDA Cables on shuttle cars jumped 300% over cables used only a few years ago.

WHY THE NEW ANACONDA CABLES LAST LONGER

A stronger jacket, made from a new neoprene compound, resists heat, flame and moisture better. In wet mines, sliver-cuts that may cause shocks are less likely to occur. A new cold-rubber insulation means new toughness, Moisture-wise and puncture-wise both. A new type of stranding improves the flexibility of these cables under stress.

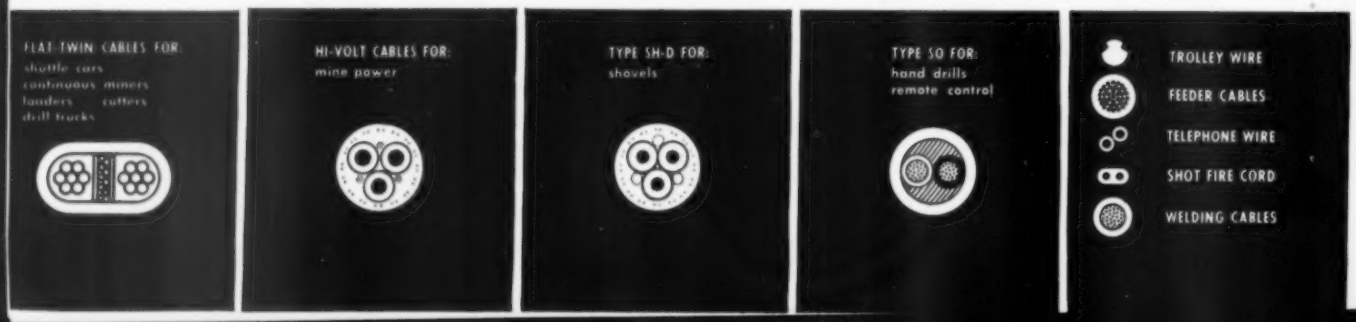
YOU BE THE JUDGE

Examine an ANACONDA Cable. See why these things are so. Call your nearest Anaconda Sales Office or Distributor for a sample. And remember: no ANACONDA Cable has ever failed a U. S. Bureau of Mines flame-test. *Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.*

53301

ANACONDA®

TODAY'S HEADQUARTERS FOR MINE CABLE



for

STRENGTH

EASY HANDLING AND FILLING

SHARP, CLEAR BRAND PRINTING

CHASE Multiwall Bags

especially designed
for the packaging, shipping
and storage of Rock Products

SINCE 1847

CHASE BAG COMPANY

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30 BRANCHES AND SALES OFFICES STRATEGICALLY LOCATED

BREAK UP THIS PLOT

Ordinary screens are in for a rough time when these three troublemakers put their heads together.

One sure way to curb their destructive activities is to install Super-Tempered Precision Space Screens.

Super-Tempered Precision Space Screens stay tight and wear longer under the most punishing attacks of vibration, abrasion and fatigue because they're made of hard and tough super-tempered steel, precision crimped and woven on powerful hydraulic looms. For greater tonnage output at lower cost, it pays to specify Super-Tempered Precision Space Screens. To order, write or phone our nearest sales office.

THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado
PACIFIC COAST DIVISION—Oakland, California
WICKWIRE SPENCER STEEL DIVISION—Atlanta, Boston, Buffalo, Chicago, Detroit, New Orleans, New York, Philadelphia

1746

SUPER-TEMPERED
PRECISION SPACE SCREENS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION
CF&I

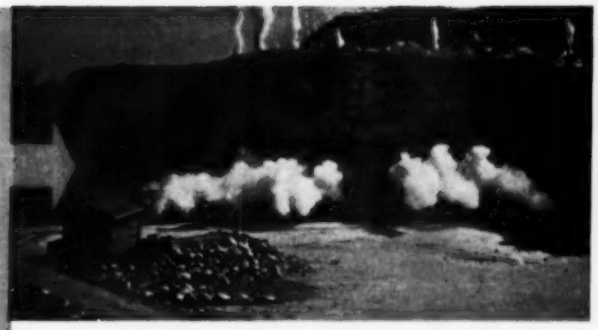
See how AMERICAN Explosives get good breakage on every shot!

AMERICAN CYANAMID COMPANY
EXPLOSIVES

You can get quick delivery of American Explosives and blasting supplies from our well located plants and magazines. The AMERICAN line includes explosives exactly suited to quarrying needs—produced under close chemical control, improved by intensive research. Make your next order American.

Capable Field Engineers Are Available At Your Call

HIGH EXPLOSIVES • PERMISSIBLES
BLASTING POWDER • BLASTING ACCESSORIES



Shoot! Notice how these properly placed charges split the seams—break the whole wall, from the bottom up.

Plenty of stone here, where it's wanted. Controlled strength and effectiveness of American Explosives are well known in quarries everywhere.

Here's a closer look. Clean, even breakage means greater efficiency, higher profits. Shoveling, loading, grading—everything is easier with the good breakage assured by American Explosives.

AMERICAN Cyanamid COMPANY

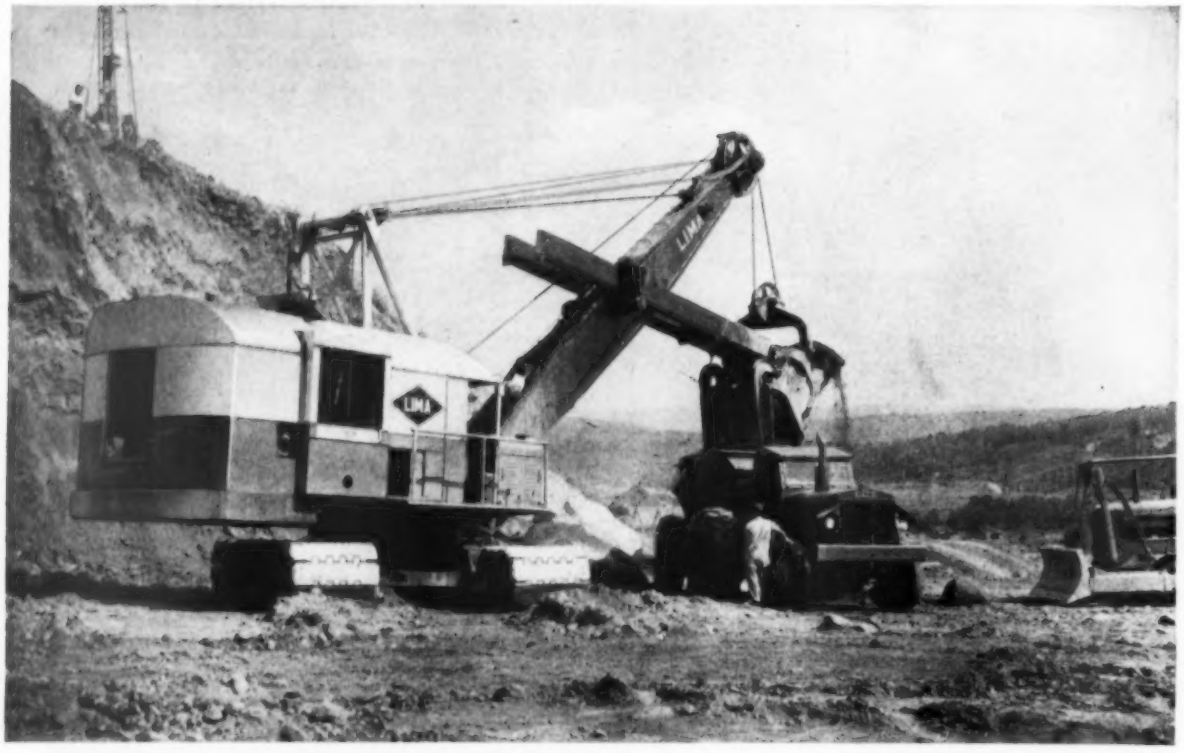
EXPLOSIVES DEPARTMENT
30 Rockefeller Plaza, New York 20, N. Y.

Sales Offices: Pittsburgh, Pa., Bluefield, W. Va., Scranton, Pa., Chicago, Ill., Pottsville, Pa., Maynard, Mass.

GREATER OUTPUT AT LOWER COST

with LIMA type 1201

3 or 3½ yd. capacity



If you are faced with the problem of maintaining profits despite continually rising labor and other costs, you will find a solution in the LIMA Type 1201 shovel, crane and dragline. Here is a machine capable of *peak production* day after day with greater efficiency, fewer delays and less operator fatigue. LIMA shovels, cranes and draglines are especially designed and built for the jobs requiring high output at low cost.

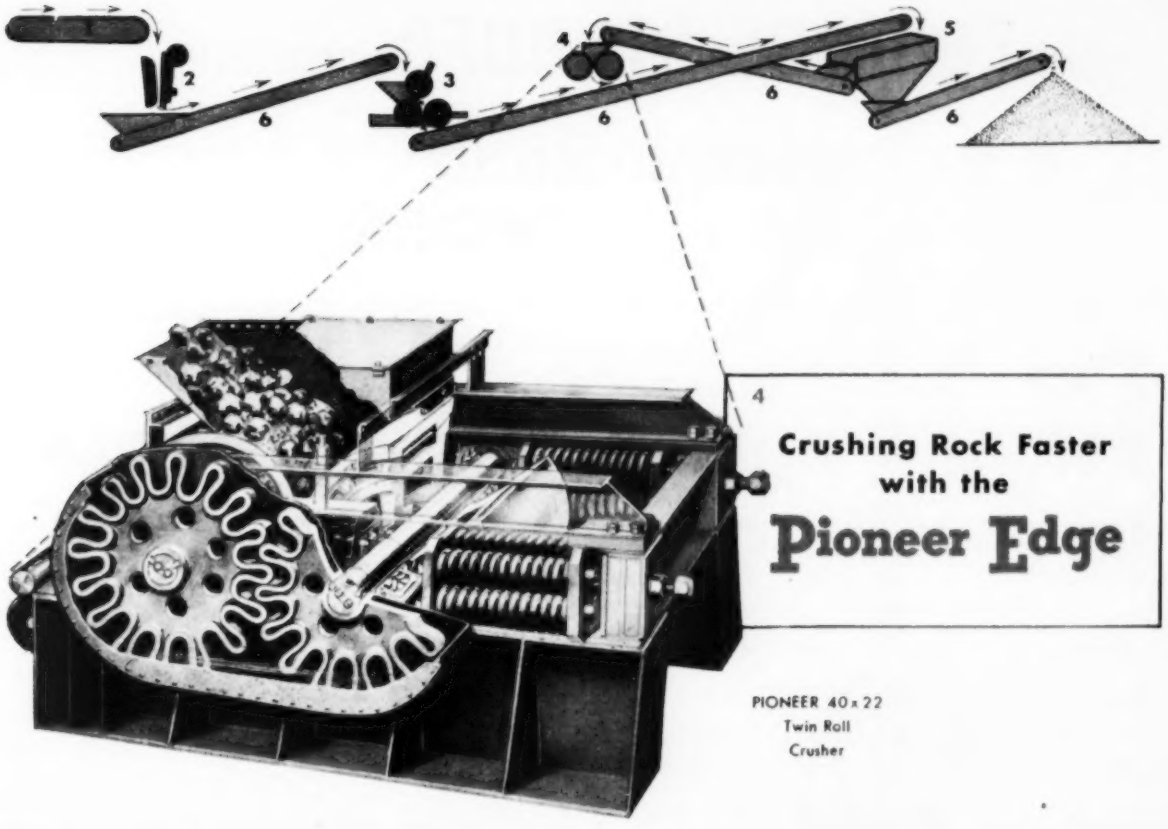
A LIMA representative will gladly show you how a LIMA Type 1201 *can cut costs on your operations. The LIMA line includes shovels ¾ to* 6 *yards, cranes to* 110 *tons, and draglines variable.*

LIMA

SHOVELS • CRANES
DRAGLINES • PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
LIMA, OHIO, U.S.A.



PIONEER 40 x 22
Twin Roll
Crusher

Crushing Rock Faster with the Pioneer Edge

Meet the champ of reduction crushers!

YOU can't beat a roll crusher for secondary and tertiary crushing!

As long as stage of reduction doesn't exceed recommended limits, these crushers turn out *more* material and cost less to operate and maintain than any other crusher of similar weight and price. Also, their product is more uniform and contains fewer fines.

Roll crushers offer a lot more advantages, too. They permit a wide range of adjustment, and make it easy to meet "tough" specifications. They require less power to crush a ton of material to a given size. They don't clog. Crusher shells are on the outside, easy to change. Lighter weight of the crusher not only means lower initial cost, but easier installation.

These advantages, plus a number of exclusive features, make the PIONEER Twin Roll Crusher the most economical, most efficient reduction crusher on the market today ... another instance of how the famous PIONEER EDGE in performance is bringing extra profits to PIONEER users.

IMPORTANT PIONEER FEATURES

1. 100% of shell surface is used for crushing. No uneven wear, no built-up edges.
2. Easy-to-replace crusher shells available with smooth or corrugated surfaces.
3. PIONEER-developed star gears of chrome molybdenum steel outlast chain drives at least 10:1.
4. Safety springs allow passage of uncrushable objects without damage to crusher.
5. Cast-steel hubs on larger crushers provide better seating for roll shells, lessen shaft strain and roll wear.
6. Timken tapered bearings in self-aligning blocks support large diameter special-alloy shafts. Bearing span on shaft is minimum.
7. Long-lived manganese steel cheek-plates line side of crusher. Easy to adjust . . . easy to replace.

SPECIFICATIONS

PIONEER Twin Roll Crushers	Model 24x16	Model 30x18	Model 40x22	Model 50x24
Max. stage of reduction* (in.)	1¼	2	3	4
Max. size of feed (in.)	3½x3½	4½x4½	6x6	8x8
Cap. in tph** (Max. size of product: ½")	52	66	95	128
Recommended horsepower	55	75	100	125
Approximate weight (lbs.)	8500	11000	20000	38000

*Based on use of coarse corrugated shells on each roll of three larger crushers, fine corrugated shells on 24 x 16.

**Capacity may vary ± 25%, depending on type of material.

BUY BOTH! HIGHER OUTPUT LOWER UPKEEP

Pioneer *Continuflo* EQUIPMENT

Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Subsidiary of Poor & Company • Chicago

Please send information on equipment checked.

- ☐ GRAVEL PLANTS
- ☐ WASHING PLANTS
- ☐ MECHANICAL FEEDERS
- ☐ ROCK PLANTS
- ☐ BITUMINOUS PLANTS
- ☐ VIBRATING SCREENS
- ☐ JAW CRUSHERS
- ☐ APRON FEEDERS
- ☐ BUZZER SCREENS (LIGHT DUTY)
- ☐ ROLL CRUSHERS
- ☐ ORE FEEDERS
- ☐ CONTINUFLO CONVEYORS

Name _____

Company _____

Address _____

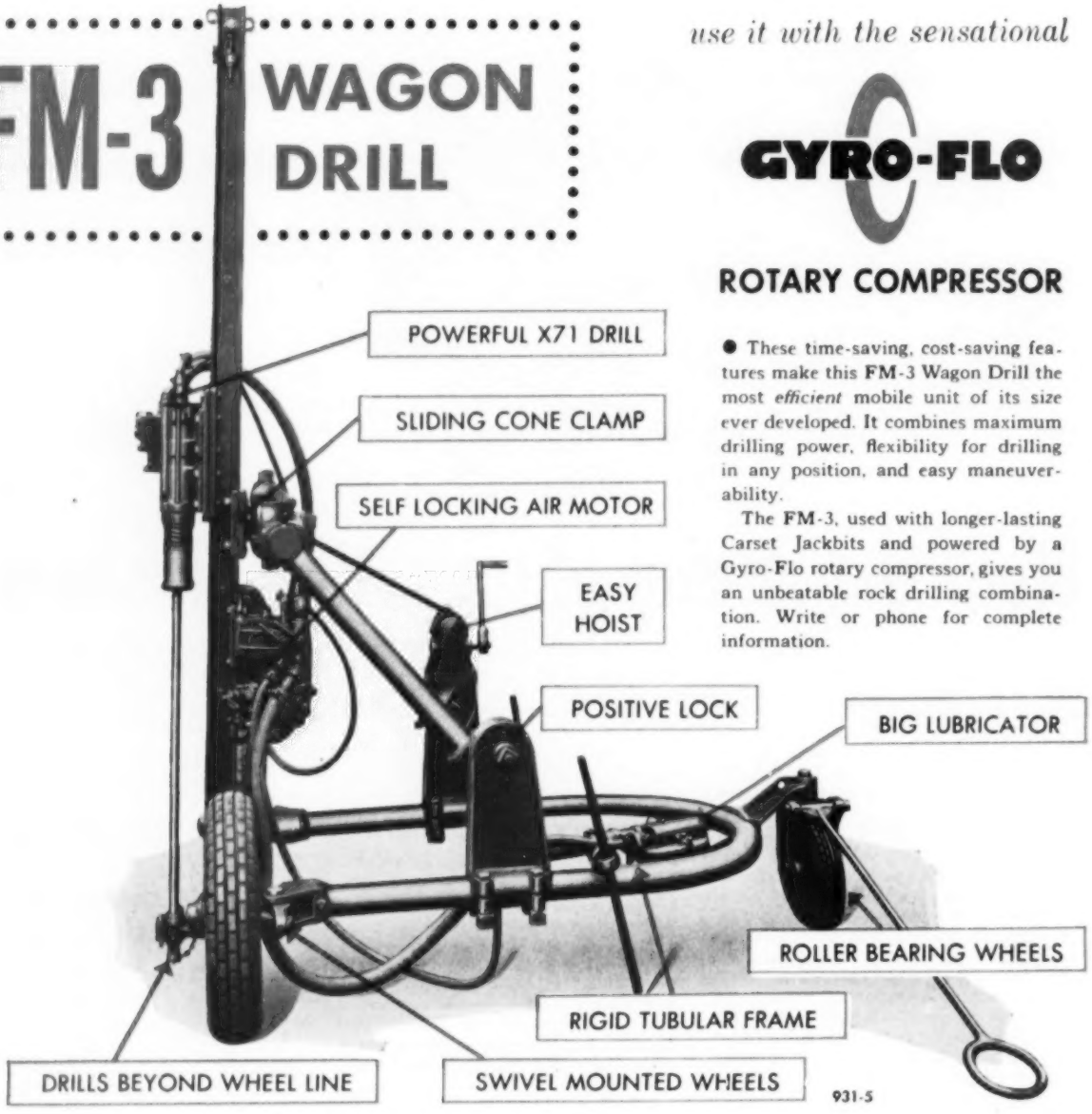
City _____ *Zone* ___ *State* _____

a FEATURE-STUDDED member of the Ingersoll-Rand CONTRACTORS' COMBINATION

FM-3 WAGON DRILL

use it with the sensational

GYRO-FLO ROTARY COMPRESSOR



● These time-saving, cost-saving features make this **FM-3** Wagon Drill the most *efficient* mobile unit of its size ever developed. It combines maximum drilling power, flexibility for drilling in any position, and easy maneuverability.

The **FM-3**, used with longer-lasting Carset Jackbits and powered by a Gyro-Flo rotary compressor, gives you an unbeatable rock drilling combination. Write or phone for complete information.

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

ROCK DRILLS • COMPRESSORS • AIR TOOLS • DIESEL AND GAS ENGINES • CENTRIFUGAL PUMPS • VACUUM EQUIPMENT

Loaded with Pull...
U. S. RAINBOW®
V-BELTS

Why U. S. Rainbow V-Belts are superior: No. 2 in a series.

Every U. S. Belt has the unique Equa-Tensil Cord Section—the exclusive U. S. Rubber development that insures efficient *pull* and strength under a wide range of operating conditions.

These belts are specially made to outlive ordinary belts and give more efficient service—the cords have had their stretch worked out by mechanical means, but still retain enough elasticity to enable the belt to take very heavy shock loads. A special latex treatment of the cords reduces heat generated by constant flexing and also provides maximum adhesion between the component parts of the belt.

Order from your jobber, or contact any of our 25 District Sales Offices, or write to address below.

Top rubber cushion in closely engineered balance with the lower section . . . to keep cool under constant stretch and return.
Equa-Tensil Cord Section — all cords scientifically placed, each pulling its share of the load.
A sturdy level cushion for the Equa-Tensil Cord Section provides structural firmness for V-grooves and over the flat pulley at V-to-flat drives.

A COMPLETE DRIVE SERVICE

MULTIPLE V-BELTS • F.H.P. V-BELTS • SHEAVES
FLAT BELTS AND BELTING • SPECIAL PURPOSE BELTS

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SERVING THROUGH SCIENCE

"U.S." Research perfects it.
"U.S." Production builds it.
U.S. Industry depends on it.

UNITED STATES RUBBER COMPANY
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For TOUGH jobs with years of work ahead...

MARION 111-M Ward-Leonard Electric shovel owned by the Hydro-Electric Power Commission of Ontario, making a cut for an open canal and recovering aggregate for concrete work.

MARION 111-M
Ward-Leonard Electric

Rock and ore have a way of making things rough for an ordinary shovel.

The machine may win, in the first few months, over the stubborn resistance of shot rock. But it still faces the test of time, for rock and ore "wear down" an ordinary shovel and break its spirit.

It's on the tough jobs, with years of work ahead, that the MARION 111-M Ward-Leonard Electric shovel has a chance to prove its real worth. Today this MARION is winning the battle of the rock pile and the ore pit on many a front.

Its victories mean greater production, lower operating cost, less maintenance expense and fewer work stoppages. Its powerful electric muscles and the shock-tested members of its frames and machinery assemblies are making owners say, "This is it!"

It doesn't cost anything to find out what the 111-M Ward-Leonard Electric can do for you. Your nearest MARION office will be glad to give you the facts.

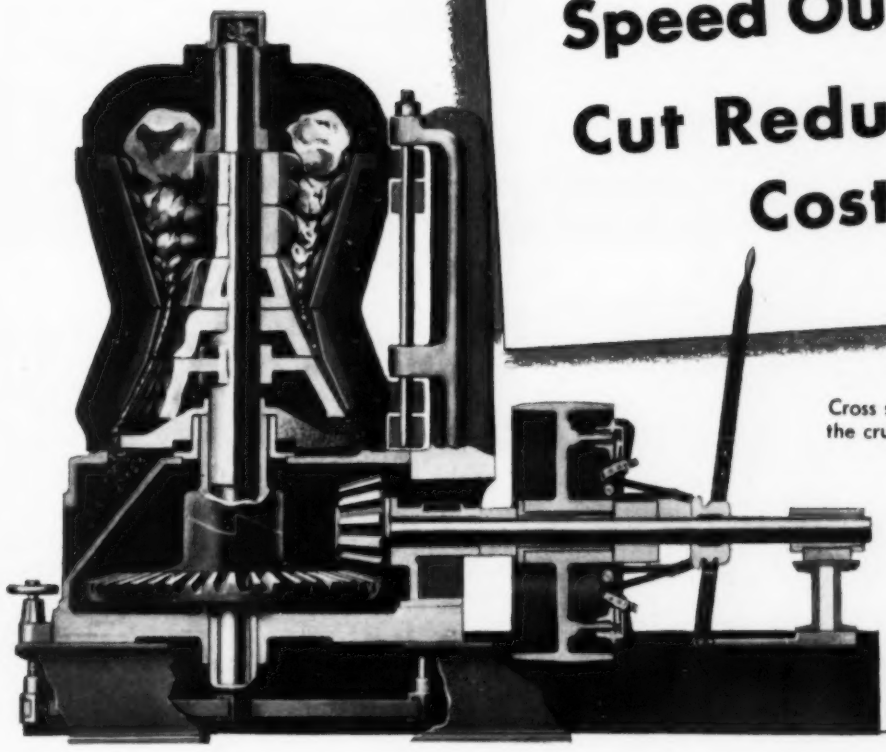
MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

from ¾ cu. yd. to 45 cu. yds.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

Here's How to

Speed Output... Cut Reduction Cost



Cross section view illustrating the crushing action.

Use

STURTEVANT

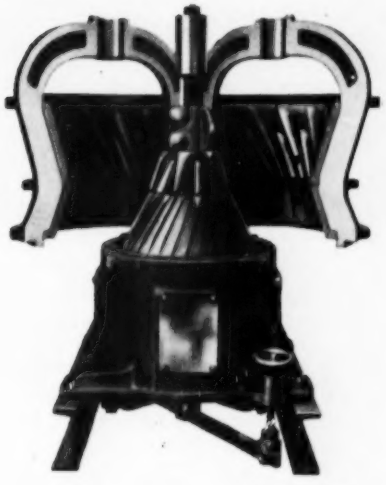
Rotary Fine

CRUSHERS

With the Sturtevant Rotary Fine Crushers you can crush or granulate to even sizes without excess dust. By simply turning the handwheel, the crusher can be quickly regulated to crush down to approximately ¼" and finer, or opened up to produce 1" size of finished product.

"Open-door" accessibility permits fast, easy, thorough cleaning.

Sturtevant Rotary Fine Crushers crush fast... do not clog. Available in output capacities from 1 to 30 tons per hour.



Designers and Manufacturers of

CRUSHERS • GRINDERS • SEPARATORS
CONVEYORS • MECHANICAL DENS and
EXCAVATORS • ELEVATORS • MIXERS

Sturtevant Mill Company

104 CLAYTON STREET, BOSTON 22, MASSACHUSETTS

Here's how ROCKMASTER® eliminates toe

Ready for the shot. Initiation from bottom.

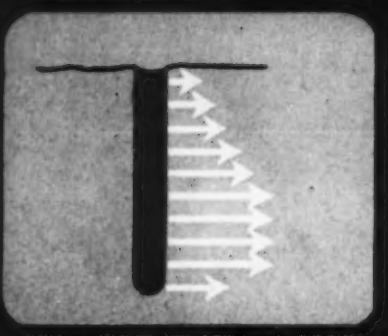
Blast under way. Toe starts to move out.

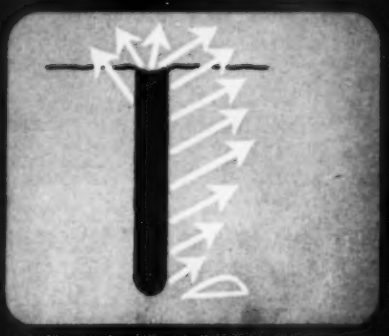
Peak of Blast. Explosive force well confined.

Burden starts to fall. Toe well out ahead.

Toe still leading. Fragmentation is good.

A well shot pile. Ready for easy digging.


Bottom initiation—burden moves straight out, no toe.


Top initiation. Force is "up and out," leaving toe.

IN THIS millisecond delay ROCKMASTER blast, 12 holes, 80 feet deep, spaced 20 feet apart were loaded with 9028 pounds of 75% Giant® Gelatin and Apex® No. 4 MV. ROCKMASTER detonators No.'s 1 through 12 were used and point of initiation was at the bottom of the holes.

Bottom initiation . . . at the point of maximum confinement . . . is an important point in eliminating toe. Look at the pictures. The toe moves out first and keeps moving, well ahead of the rest of the blast. At the start of detonation the entire column of explosives is confined by stemming. The full power of explosive force follows the line of least resistance toward the free face, directly into the burden.

With initiation from the top, the force again follows the line of least resistance, which is up and out. As the action moves progressively to the bottom, it is still "up and out." As it reaches the bottom, the toe is not subjected to the direct action that bottom initiation gives. The result is that the explosive force tends to jump and leave a toe.

Besides eliminating toe and cutting down on secondary shooting, the ROCKMASTER system gives you better breakage, reduces vibration and noise and gives you control over throw that means easy digging. For full details, ask your Atlas representative to show you the picture presentation of the ROCKMASTER story.

ATLAS

See the new Atlas movie, "The Inside Story," a technical discussion of Blast Hole Detonation. Make arrangements through your nearest Atlas Office.

ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY,
WILMINGTON 99, DELAWARE

Offices in principal cities

PAN CONVEYOR ROLLS FOR THREE YEARS ON ABK METAL WHEELS

Three years ago, the Ohio Hydrate and Supply Co. of Woodville, Ohio, installed wheels cast from ABK Metal on the pan conveyor from their crusher . . . and they're still doing a good job. Previously, wheels of white iron or steel developed flat spots and were discarded with less than 18 months service. ABK Metal wheels *stay round* under these abrasive conditions, whether rolling or sliding, and save maintenance dollars in limestone production.

There's reason for ABK Metal's success in this and similar installations where abrasive wear is a major maintenance factor. The controlled structure of this nickel-chrome iron makes it more resistant to abrasion than other metals of the same hardness. The hardness of ABK Metal can be specified from 500 to 700 Brinell.

There are many parts in your plant – grinding mill liner plates, roll heads and wear plates, to name a few – where ABK Metal castings can help you slash your maintenance and operating costs.

Next time you order castings that must withstand abrasion, specify ABK Metal, an exclusive Brake Shoe product.

QUALITY CASTINGS IN ABK METAL MEEHANITE DUCTALLOY

Chicago • Houston • St. Louis • San Francisco • Toledo

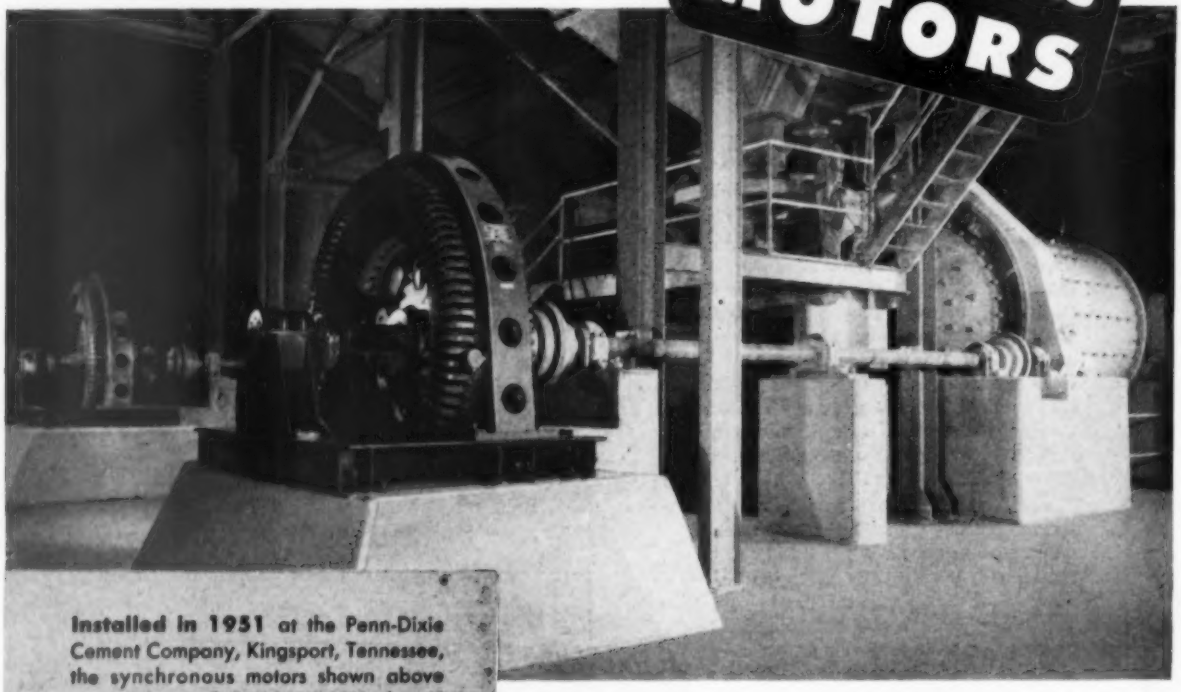
AMERICAN Brake Shoe COMPANY

BRAKE SHOE AND CASTINGS DIVISION

230 Park Avenue, New York 17, N. Y.

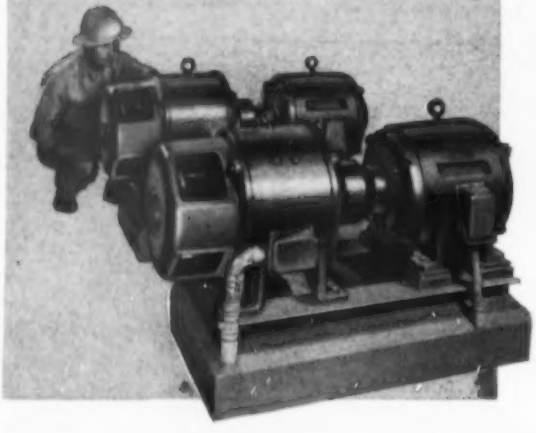
Built for a Long Grind

ALLIS-CHALMERS
Synchronous MOTORS



Installed in 1951 at the Penn-Dixie Cement Company, Kingsport, Tennessee, the synchronous motors shown above are each rated 350 hp, 80% pf, 440 volts, 180 rpm.

The 8 by 12-ft ball mill preliminators were furnished by Allis-Chalmers, along with the 15-kw m-g sets (shown below) which supply the excitation for the grinding mill motors.



Here are three reasons why Allis-Chalmers grinding mill motors help keep your mills grinding economically year after year:

Each motor is engineered for its job. A-C's half century of experience building electrical equipment *and* processing machinery assures torque and other operating characteristics tailored to the individual installation requirements.

Time-proved basic design features contribute to long life and trouble-free operation. These are described in detail in Bulletin 05B7648.

Adequate manufacturing, inspection and testing facilities insure that each motor will be built exactly as specified.

For more information on motors that minimize maintenance and down time, call in your A-C representative, or write for illustrated Bulletin 05B7648. Allis-Chalmers, Milwaukee 1, Wisconsin. A-4088

ALLIS-CHALMERS

REED CRUSHED STONE CO.

GILBERTSVILLE, KENTUCKY *reports . . .*

"If that LORAIN-'50' wasn't the best available, I wouldn't have it. It has stood up well in tough material . . . very minor repairs."

Here's a quarry operator that demanded the best — and got it! It's a 1-yd. Lorain-50 shovel. The work was tough, steady digging 10 hours a day in heavy limestone. Pieces of shot rock average 1 to 3 ft. in size, yet the "50" averages 160 yards an hour. The production of this plant goes to counties, construction companies and governmental projects in the surrounding area, including the new Atomic plant west of Paducah.

To satisfy their demand for the best 1-yd. shovel which would withstand tough digging, Reed Crushed Stone Company got these performance features, among others, in their Lorain-50. Shock-absorbing Hydraulic Coupling that reduces wear and tear on turntable mechanism and cables, the engine never stalls under any digging conditions . . . air controls available to lessen operator fatigue and increase daily yardage . . . center drive turntable construction to transmit power most directly to the dipper . . . plus "balanced quality" of all parts and design that has made Lorains outstanding for over half a century.

If you want "the best" in a 1-yd. shovel, be sure to investigate the Lorain-50. Ask your near by Thew-Lorain Distributor to show you a "50" in action and give you complete information.

THE THEW SHOVEL CO., LORAIN, OHIO

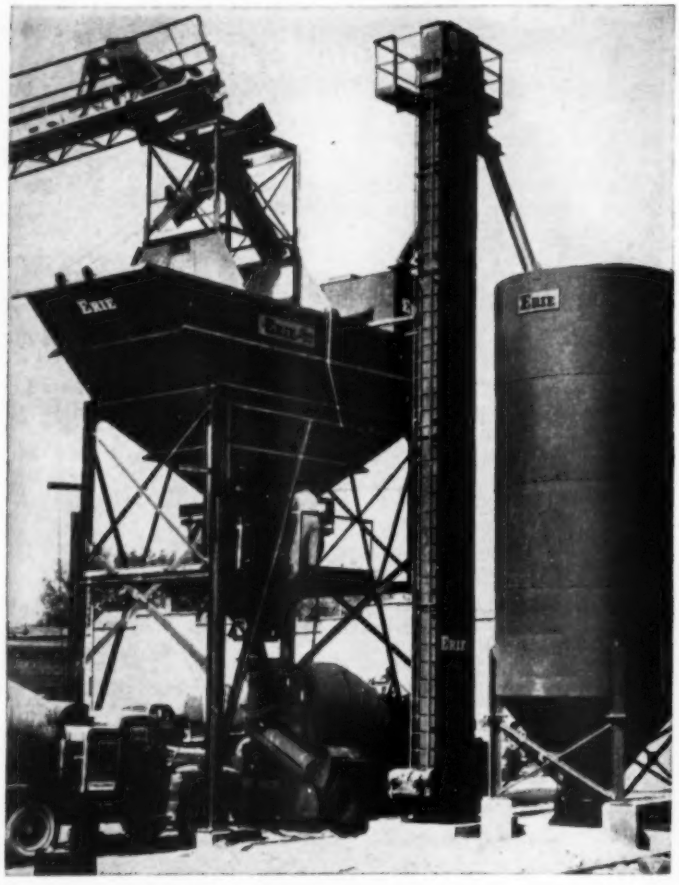
A 1-YD. LORAIN-50 working in the Reed Crushed Stone Company limestone quarry at Gilbertsville, Ky. Owner Clyde Reed, who knows shovels, is a veteran construction man, started working with equipment when he was 15. Reed operations cover a 30-40 acre plot, some sections of the pit having an 80 ft. face.

THE PREFERRED NAME IN SHOVEL-CRANES

THEW LORAIN 50 SERIES

ERIE PORTABLE TRUCK MIXER CUTS COSTS, STREAMLINES MOHAWK PAVING CO.'S OPERATION!

One-man Operation Produces as Much as Previous Set-up Needing Two Units and Three Men! Loads Mohawk's Mixer Trucks with Four Cu. Yards in Three Minutes!



One man operates this GTES-79 Erie bin and weighing Aggremeter for Mohawk. Their own men set it up because it comes in well-engineered, easy-to-assemble sections. Over-the-road hauling is easy for the same reason. Capacity is 80 yds. of specification concrete per hour.

SOLD BY

DOW & CO. BUFFALO, N. Y.

In the Summer of 1952, the Mohawk Paving Co. of Geneva, N. Y. was completely destroyed by fire. In rebuilding the operation, Leonard Liberto, president, chose an Erie Portable Truck Mixer Plant to replace the demolished equipment.

"We chose Erie," says Mr. Liberto, "because it cut down overhead and increased our production. "One man does the work formerly done by three. And it was easy to assemble. Our own employees did the work. High quality materials in the equipment and expert workmanship were additional reasons."

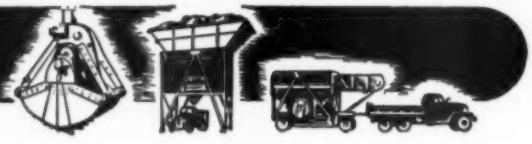
Before buying a portable batching and mixing plant, let us tell you the facts about Erie.

Cable Address: EXIMPORT *Write for* Booklet GS, Dept. Q93

ERIE

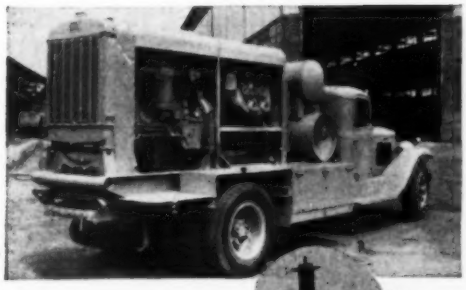
STEEL CONSTRUCTION COMPANY

3911 GEIST ROAD • ERIE, PENNSYLVANIA

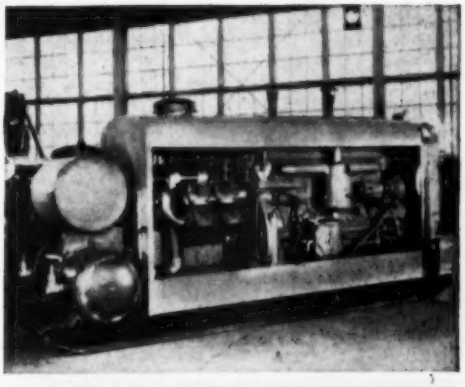


"AIR POWER" by MURPHY DIESEL

rugged, reliable, responsive



GARDNER-DENVER truck mounted compressor powered by a Murphy Diesel.



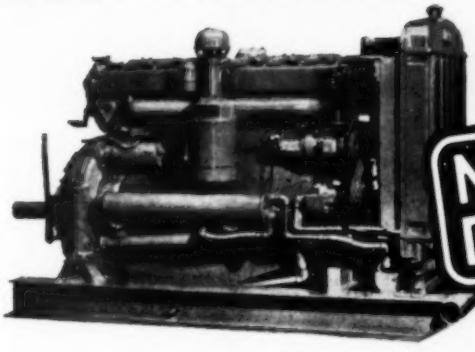
INGERSOLL-RAND semi-portable compressor powered by a Murphy Diesel.

JAEGER portable powered by a Murphy Diesel.

JOY stationary compressor powered by a Murphy Diesel.

LE ROI portable compressor powered by a Murphy Diesel.

WORTHINGTON portable compressor powered by a Murphy Diesel.



MURPHY DIESEL

MURPHY DIESEL COMPANY

5307 W. Burnham St. Milwaukee 14, Wisconsin

254 A

Heavy duty power for construction

Murphy Diesel engines and power units are available in sizes from 90 to 226 H.P. Engine speeds are 1200 and 1400 rpm. Also available are dual-fuel engines, crude oil burning engines and altitude engines which will maintain sea level ratings up to 9000 ft. "Packaged" generating units are available with capacities ranging from 60 to 140 K.W. A.C. or D.C. voltages to suit your requirements.

This "Flying Saucer" carries Truth!

Crusade for Freedom brings hope to enslaved millions

The word "SVOBODA" on the balloon in this picture is the Czech word for "Freedom."

Supplementing Radio Free Europe in 1951, thousands of these "Flying Saucer" balloons were released by Crusade for Freedom along the borders of the Iron Curtain countries. They contained messages of hope and courage from millions of Americans who joined in the 1951 Crusade for Freedom.

LOOK WHAT YOU DID

In the last two years the contributions of Americans to the Crusade for Freedom have amounted to $3,500,000. This money helped make possible Radio Free Europe's thirteen transmitters in Germany and Portugal. It also helped establish Radio Free Asia, which broadcasts to China in four different languages. These facilities are used daily to spike Communist lies and satisfy the hunger of millions for truth.

MORE HELP NEEDED!

In 1952, at least $4,000,000 and the signatures of millions more Americans on leaflets ("FreedomGrams") are needed—not only to carry on this operation but also to expand it on an even bigger scale.

Support this crusade of truth now.

Help Truth Fight Communism!
Join the Crusade for Freedom

Wire Rope at Work — Perhaps the most unusual building of our time is the State Fair Arena at the State Fair Grounds, Raleigh, N. C., shown here while construction was in progress. Startling in design, this steel-and-concrete structure is some 300 ft long by 300 ft wide, with sides that rise gracefully in perfect arcs. But its most striking feature is the gently-curved roof, which is supported entirely by Bethlehem steel cables.

Forming a grid with 6-ft x 6-ft squares, the cables, zinc-coated for resistance to corrosion, are securely anchored to the framework of the building and are fastened together at points of intersection. Bolt-clipped to the grid are corrugated metal sheets which, with the topping, constitute the roof proper. This ingenious application of steel cable—a member of Bethlehem's wire rope family—has already aroused wide interest and may well suggest a new trend in design and construction.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:
MINING • CONSTRUCTION • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

DIVIDENDS... in human lives

BUSINESS EXECUTIVES!
CHECK THESE QUESTIONS

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ◯ HAVE YOU GIVEN YOUR EMPLOYEES TIME OFF TO MAKE BLOOD DONATIONS?
- ◯ HAS YOUR COMPANY GIVEN ANY RECOGNITION TO DONORS?
- ◯ DO YOU HAVE A BLOOD DONOR HONOR ROLL IN YOUR COMPANY?
- ◯ HAVE YOU ARRANGED TO HAVE A BLOOD-MOBILE MAKE REGULAR VISITS?
- ◯ HAS YOUR MANAGEMENT ENDORSED THE LOCAL BLOOD DONOR PROGRAM?
- ◯ HAVE YOU INFORMED EMPLOYEES OF YOUR COMPANY'S PLAN OF CO-OPERATION?
- ◯ WAS THIS INFORMATION GIVEN THROUGH PLAN BULLETIN OR HOUSE MAGAZINE?
- ◯ HAVE YOU CONDUCTED A DONOR PLEDGE CAMPAIGN IN YOUR COMPANY?
- ◯ HAVE YOU SET UP A LIST OF VOLUNTEERS SO THAT EFFICIENT PLANS CAN BE MADE FOR SCHEDULING DONORS?

Remember, as long as a **single** pint of blood may mean the difference between life and death for **any** American . . . the need for blood is **urgent!**

NATIONAL BLOOD PROGRAM

America's blood bank needs **more** blood, **now.** Be a regular depositor and know that your dividend is saving a life of some American—somewhere.

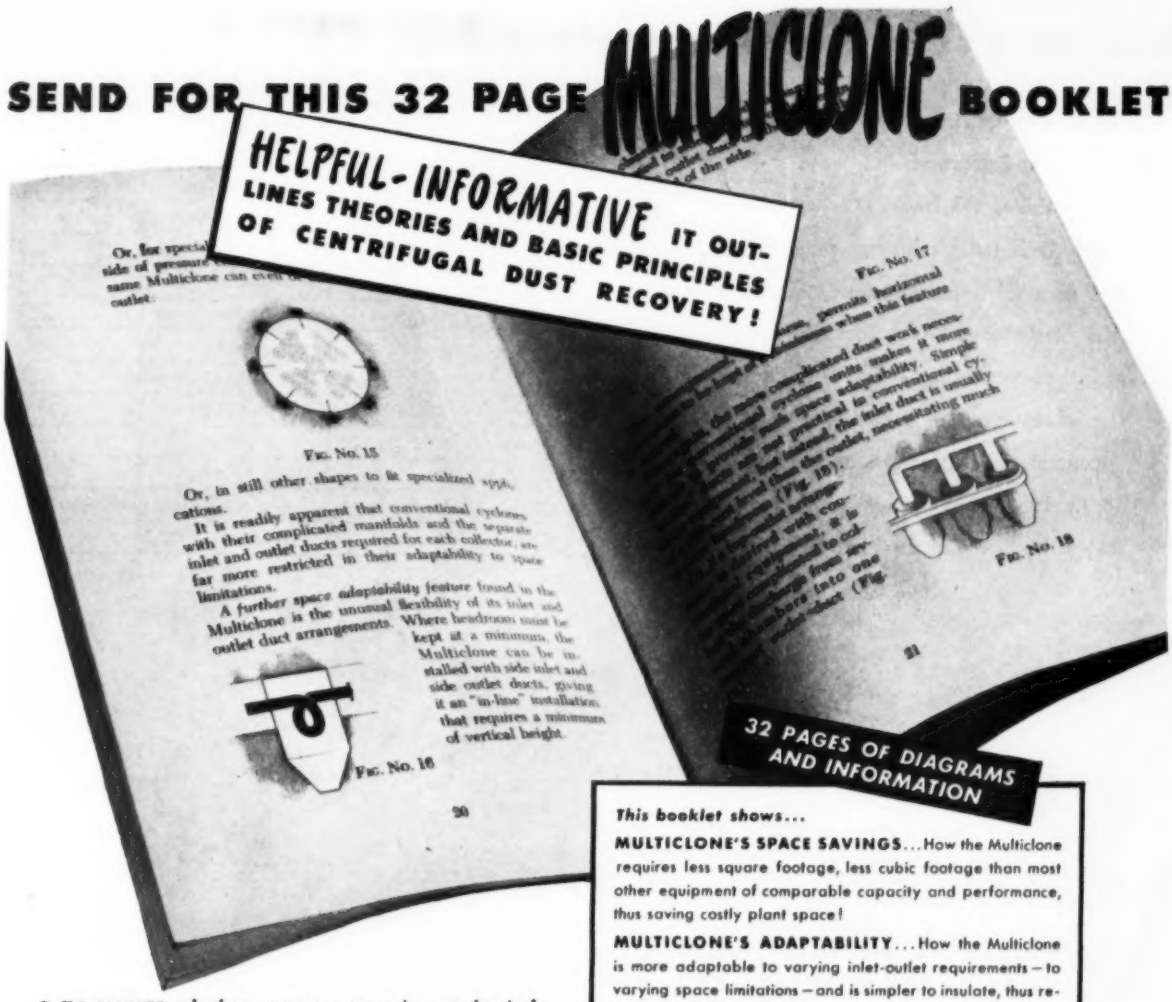
It may be a soldier shot down in battle, suffering from **shock.** Or someone here at home, sick and in dire need of new blood to restore life. A mother in childbirth, or a child in an accident.

America must give. America is **you.** Won't you call your Red Cross, Armed Forces or Community Blood Donor Center right now, for an appointment?

GIVE BLOOD

...give it again and again

SEND FOR THIS 32 PAGE MULTICLONE BOOKLET


HELPFUL-INFORMATIVE IT OUTLINES THEORIES AND BASIC PRINCIPLES OF CENTRIFUGAL DUST RECOVERY!
FIG. No. 15
Or, in still other shapes to fit specialized applications.
It is readily apparent that conventional cyclones with their complicated manifolds and the separate inlet and outlet ducts required for each collector, are far more restricted in their adaptability to space limitations.
A further space adaptability feature found in the Multiclone is the unusual flexibility of its inlet and outlet duct arrangements. Where headroom must be kept at a minimum, the Multiclone can be installed with side inlet and side outlet ducts, giving it an "in-line" installation that requires a minimum of vertical height.
FIG. No. 16
20
FIG. No. 17
FIG. No. 18
21
32 PAGES OF DIAGRAMS AND INFORMATION

NO MATTER whether you are now using mechanical dust recovery equipment or are planning the installation of such equipment at some future date, here is a booklet that is full of helpful and valuable information on centrifugal dust recovery. It not only explains the basic methods and principles involved, but also shows the important differences between small and large diameter separating tubes, shows how to simplify your duct work and reduce installation costs, and outlines many other important factors to be considered in selecting mechanical dust recovery equipment.

In addition, this informative booklet illustrates and explains how MULTICLONE'S unique *vane* design is fundamentally different...how it makes possible greater compactness, simpler installation, high recovery of the small particles as well as the medium and coarser ones, and many other facts on MULTICLONE advanced design.

A limited supply of these booklets is available for free distribution to those interested in mechanical recovery equipment and methods. Write for your copy today.

This booklet shows...

MULTICLONE'S SPACE SAVINGS...How the Multiclone requires less square footage, less cubic footage than most other equipment of comparable capacity and performance, thus saving costly plant space!

MULTICLONE'S ADAPTABILITY...How the Multiclone is more adaptable to varying inlet-outlet requirements—to varying space limitations—and is simpler to insulate, thus reducing installation costs!

MULTICLONE'S EFFICIENCY...How Multiclone's multiple *small diameter* tubes, made possible by its exclusive vane design, give higher centrifugal forces and more complete cleansing of *all* suspended particles—even small ones of 10 microns and less!

MULTICLONE'S LOW MAINTENANCE...How the Multiclone has no high speed moving parts to repair or replace, no pads or filters to clean or renew, nothing to choke gas flow or increase draft losses as suspended materials are recovered. Multiclone draft losses remain uniformly low—recovery efficiencies uniformly high—at all times!

Make sure that a copy of this helpful booklet is in your reference files by sending for your copy now!

NOW SELLING...

COTTRELL Precipitators
MULTICLONE Collectors
TURBULAIRE Spray Dryers

...in all parts of the U.S.A. and foreign countries.

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1015 W. NINTH ST., LOS ANGELES 15, CALIF. CHRYSLER BLDG., NEW YORK 17 • 1 N. LaSALLE ST. BLDG., CHICAGO 2 • 1429 PEACHTREE ST. N.E., ATLANTA 5 • HOBART BLDG., SAN FRANCISCO 4 • PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL.

How does your shovel compare with a BAY CITY?

Make a comparison *NOW* of the brief, essential specifications listed here and prove to yourself why dollar for dollar the BAY CITY heavy-duty ¾ yard Model 45 is today's biggest value in excavating and material handling equipment. This is only part of the story — consider the design features for full convertibility — keep in mind the operating advantages that assure snappy swing, quick control, easy operation, and fine balance.

For the full story call your BAY CITY dealer today.

BAY CITY SHOVELS, INC. • Bay City, Michigan

SPECIFICATION	BAY CITY Model 45	Other ¾ Yd. Shovels
Weight (as shovel)	46,500 lbs.	
Power (std. gas)	81 HP @ 1200 RPM	
Engine Displacement	517 cu. in.	
Shovel Boom	19′ 0″	
Crowd	One Piece Chain	
Digging Radius 45°	28′ 1″	
Crane Boom (Std.)	35′ Pin-connected	
Crane Capacity, 10′ Rad.	28,500 lbs.	
Hoe Boom	20′ 0″	
Digging Depth	19′ 6″	
Bases	Cast Alloy Steel	
Crawler Bearing Area	24″ Shoes—5930	

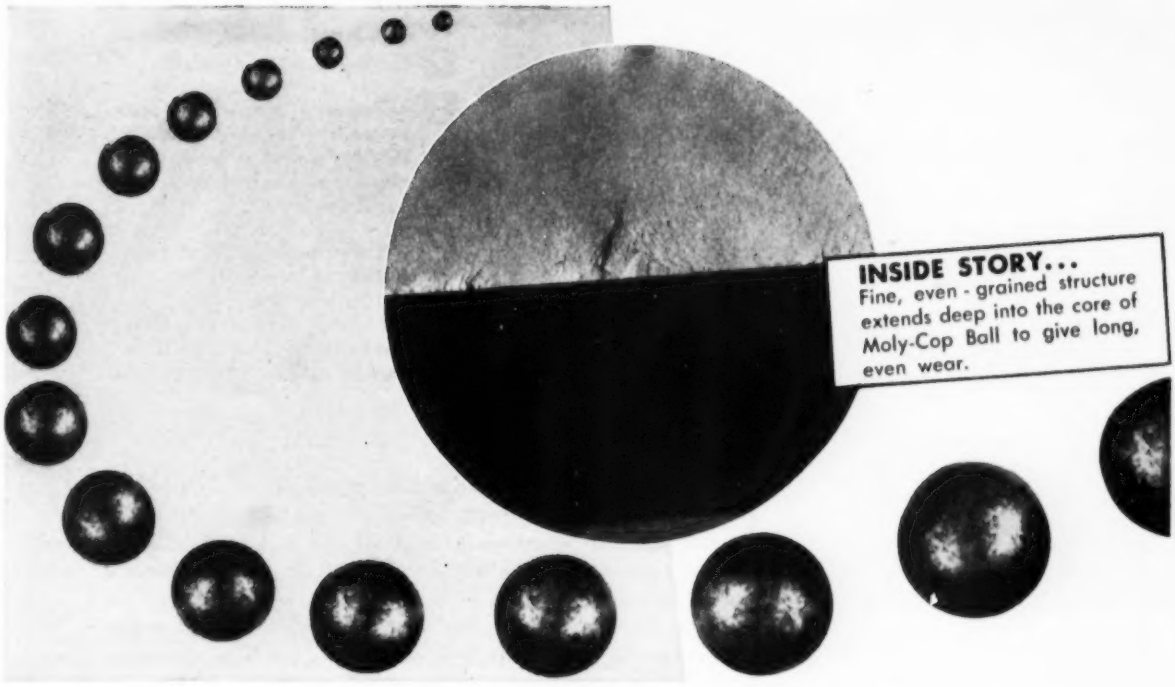
WRITE for this CATALOG

Get this 20-page catalog, packed with pictures of parts, assemblies and jobs, illustrating the big value built into this ¾ yard crawler. It's yours for the asking.

222

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



If you want a finer grind . . . use a finer ball!

SHEFFIELD MOLY-COP

TRADEMARK REG.

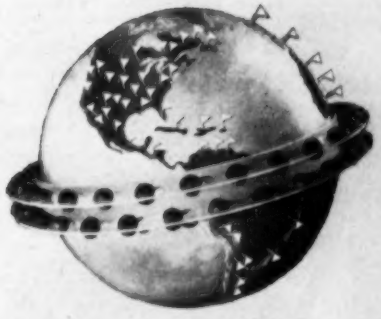
COPPER-MOLYBDENUM-ALLOY

Grinding Balls

For fine grinding you want a ball that will give you the highest possible production rate with the lowest cost per ton of material ground . . . fewer chargings, less "down time."

Sheffield Moly-Cop Balls meet that requirement — because Sheffield's exclusive alloy and automatically controlled manufacturing methods produce a ball of finer, denser, more uniform structure. You get toughness and greatest resistance to abrasion. Moly-Cop Balls wear evenly, retain their spherical shape longer.

Tests have proved that Moly-Cop Balls wear up to 35% longer than alloy cast steel balls; up to 50% longer than best quality unalloyed carbon forged steel; and up to 120% longer than cast white iron balls. Considering initial costs and length of service, the net savings that result from the use of Moly-Cop Balls are substantial.

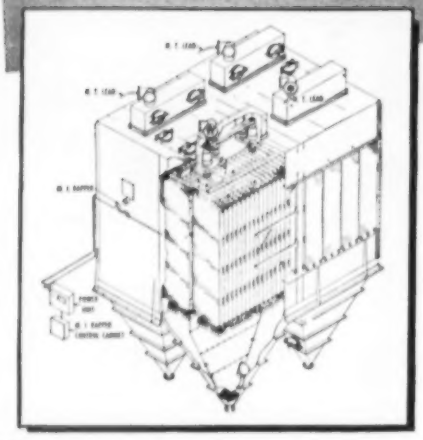


Used and proved around the world—*Sheffield engineers* are ready to prove the money-saving advantages of Moly-Cop Grinding Balls in your operation. Get in touch with us now.

SHEFFIELD
STEEL
CORPORATION
HOUSTON KANSAS CITY
TULSA
SUBSIDIARY OF ARMCO STEEL CORPORATION

Export Representatives: ARMCO INTERNATIONAL CORPORATION, MIDDLETOWN, OHIO

NEW!
COTTRELL M-I RAPPER
ELIMINATES ALL FOUR...



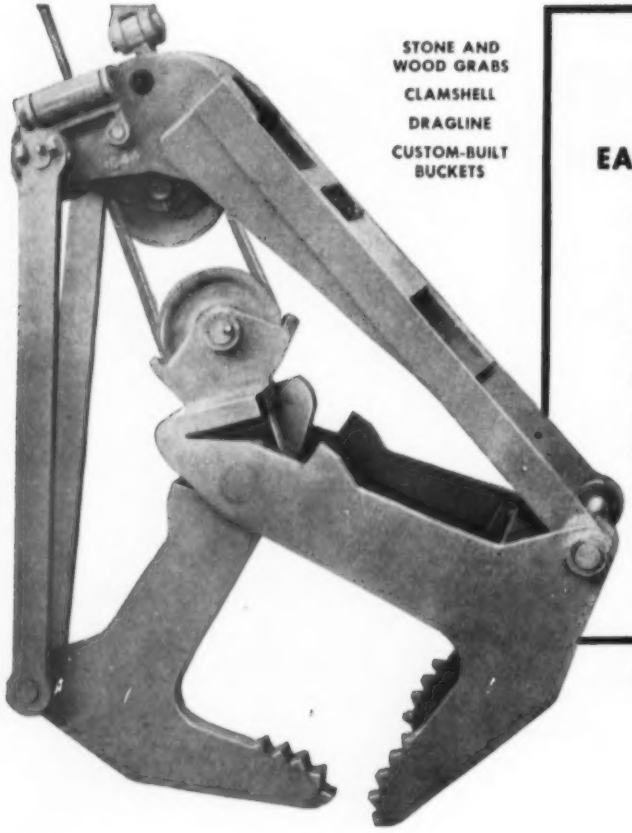
1. No more rapping puffs.
2. Automatic operation—conveniently located remote control panel provides complete control plus surveillance.
3. No dampers in inlet and outlet of precipitator are necessary.
4. No sections need be taken out of service for rapping.

HERE'S HOW IT WORKS: The new Research Corporation Magnetic Impulse Rapping System uses continuous, sequential, low intensity vibrations to keep thinner average coating on collecting electrodes. This method maintains optimum electrical conditions for continuous high efficiency dust collection. Ask your Research Corporation Field Engineer for complete data on this important new development, or write to us directly.

RESEARCH CORPORATION

405 Lexington Ave., New York 17, New York
122 South Michigan Ave., Chicago 3, Illinois
Bound Brook, N. J.

RC 141



STONE AND WOOD GRABS
CLAMSHELL
DRAGLINE
CUSTOM-BUILT BUCKETS

WELLMAN

EASY HANDLING OF LARGE STONES

● Those big stones won't slip from the Wellman Stone Grab. Four-part closing cable reeving develops tremendous closing force on stones. Model shown has 5-ton capacity, 4½ foot jaw spread. Other capacities available.

Want Facts? Send for free descriptive bulletins.

THE WELLMAN ENGINEERING COMPANY
7014 Central Avenue
Cleveland 4, Ohio

CHAMPION

"Wear Devil A" Electrodes increase hook service life as much as three times!

Li'l Champ says:
Edges are hard surfaced prior to placing equipment in service.
Let us tell you more about "Wear Devil A" Electrodes. Write for full information.

Field tests prove that **"Wear Devil A"** deposits on the wearing edges afford impact and abrasion resistance far superior to that of non surfaced grappling hooks.

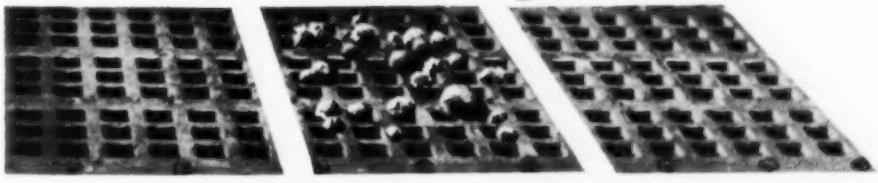
Due to excellent bond between weld and base metal, **"Wear Devil A"** deposits will not spall or crack despite the most severe service conditions.

When hooks have become worn they can be resurfaced without having to remove any of the old deposit.

Hardness averages 53 — 58 Rockwell C.

THE CHAMPION RIVET CO.
CLEVELAND 5, OHIO • EAST CHICAGO, IND.

Before... and... After...



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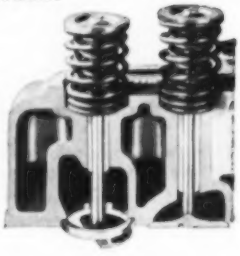
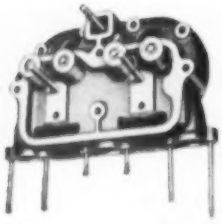
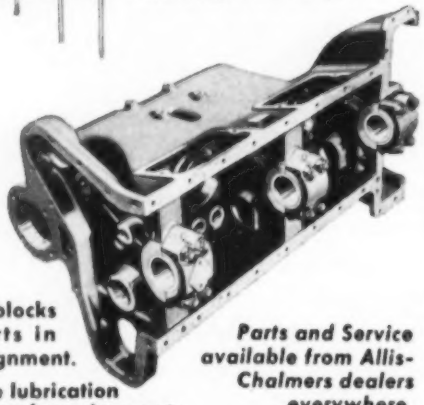
2. Valve-in-head construction.





3. On large engines one interchangeable head to each two cylinders permits one man to make adjustments right on the job.



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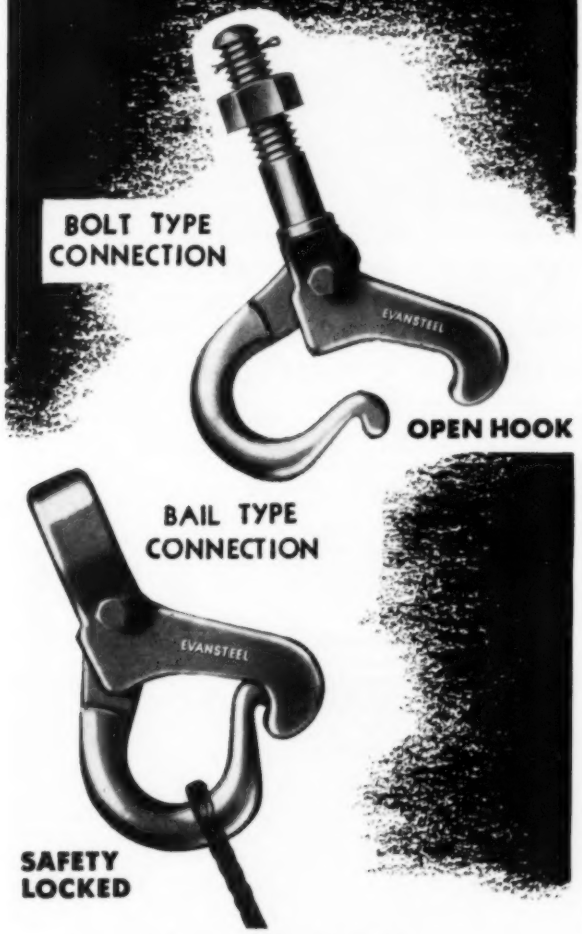

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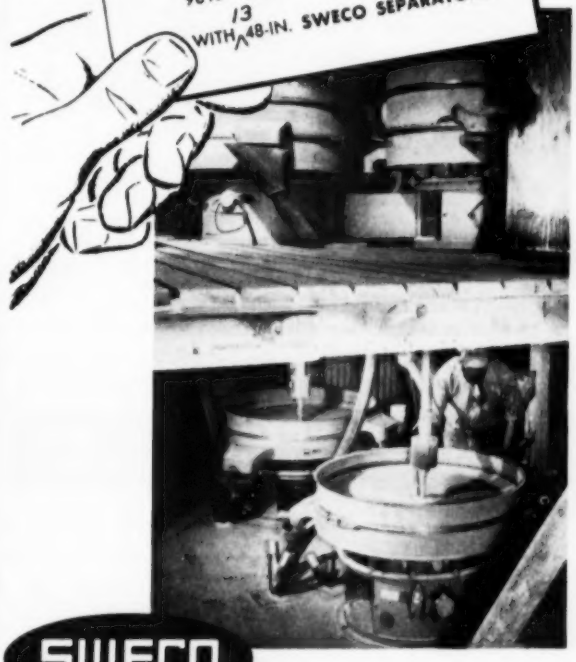

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BAG PACKER

FILLS and WEIGHS
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The AUGER-MATIC Bag Packer has a multi-twist auger which can quickly be changed to pack any material from powder to pellets.

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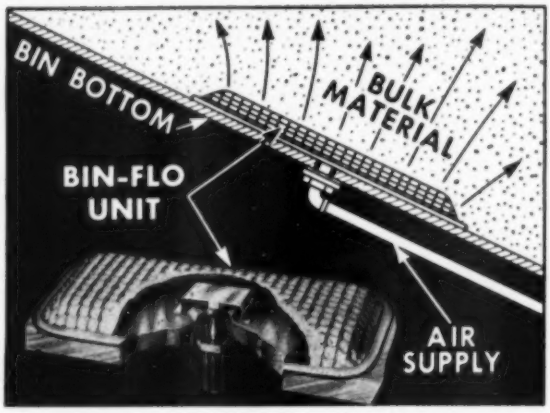

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USES SMALL VOLUME OF AIR AT LOW PRESSURE

KEEPS BULK MATERIALS MOVING

BIN-FLO units in bins, chutes, hoppers, etc., restore flow characteristics to dry, finely ground materials which tend to pack or bridge in storage. Types for all materials and conditions. No moving parts; simple installation; negligible operating cost; no maintenance cost.

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Gives greater yardage at lower cost.
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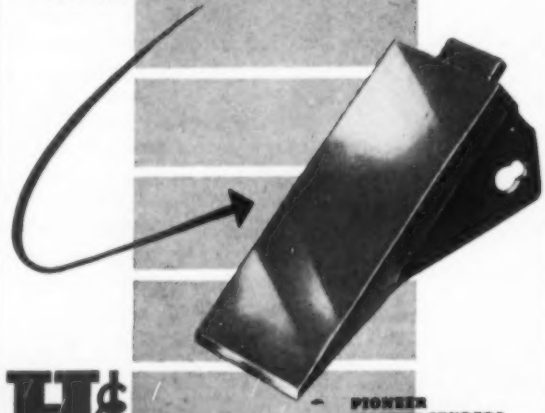

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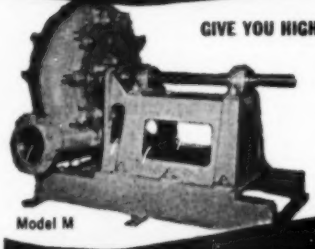

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MAKE Belt Splicing
A "ONE MAN" JOB
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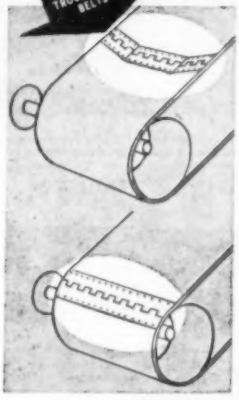

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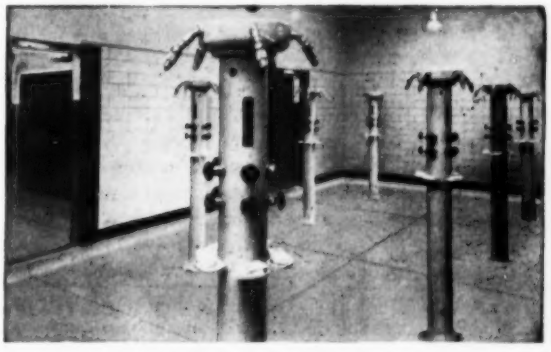

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BRADLEY COLUMN SHOWERS

Without the usual partitions of the 3-stall or 5-stall Bradley Showers, the Column Showers are otherwise complete with drain fittings, sprayheads, soap trays, mixing chamber for temperature control with hot and cold water control valves. Ready to install.

Floor space is saved and by placing Showers away from walls, wall water-proofing is not required and space may be used for lockers and benches.

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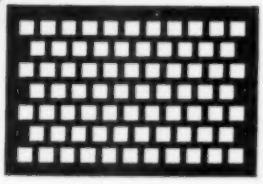

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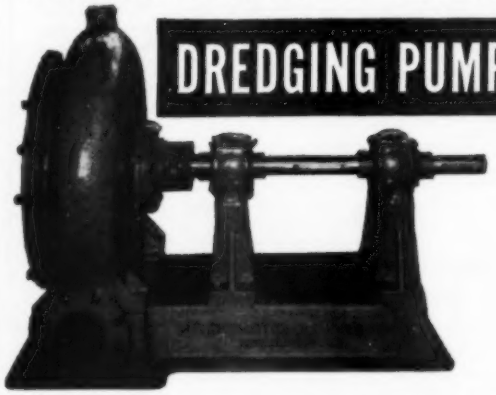
● If you need dump truck equipment that is built to take a beating day after day without downtime . . . that will work longer with less maintenance and operating cost . . . that you can be proud to own and operate . . . you should become a Galion user—right away!

There's a standard Galion model to meet virtually every need of every quarry contractor. But, if you need extra heavy duty units for jobs that are tougher than tough, Galion will be glad to design and build them to your specifications. Just see your nearest Galion distributor—today! A-6721

THE GALION ALLSTEEL BODY COMPANY
GALION • OHIO

HETHERINGTON & BERNER

DREDGING PUMPS



performance-proven on the toughest jobs

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Hetherington & Berner sand and gravel pumps are available in two general types: *STANDARD*, (4", 6" and 8" sizes) with semi-steel parts, for ordinary working conditions and moderate heads; and *DREADNAUGHT*, (6", 8", 10", 12" and 15" sizes) with manganese steel parts, for heavy duty jobs with stringent head conditions.

Write for Bulletin DP-147.

HETHERINGTON & BERNER INC.
717 Kentucky Ave. Indianapolis 7, Indiana

Clean Sand and Gravel . . . a *Must* for Contractors

. . . *at new low cost with*

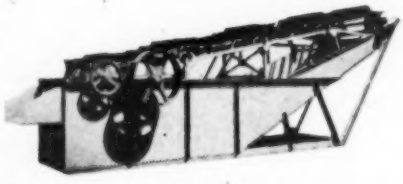
RELIANCE Equipment

RELIANCE Roller Bearing Washing Screens with special scrubbing sections insure thorough breaking up of the material.

Write for Bulletin

FOR fast economical production, use the high-efficiency washing and screening methods, now available in Reliance Machinery. Dynamic improvements in the past five years have made Reliance the standard equipment in modern installations everywhere. If you require a single machine, a combination of units or a complete plant, you can depend on Reliance experience for best results.

RELIANCE Paddle Type Wash Box with long gradual incline gives a clean, dewatered product that can be loaded or stored without segregation.



UNIVERSAL ROAD MACHINERY CO. KINGSTON, N. Y.

September, 1953

THE CONCRETE MANUFACTURER

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Pneumatically operated discharge door

BIGGER PROFITS with a BIGGER MIXER!

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Producing lightweight blocks? If you're using a modern high production block machine, we'll bet your mixer operator is having trouble keeping up. Authorities agree lightweight aggregates require more mixing time. Unless you sacrifice quality you lose production and PROFITS.

The GOCORP 75 cu. ft. Batch Mixer solves this problem completely. The additional capacity permits the needed extra mixing time for your block machine to run at full speed. Once again, the people at GOCORP recognized a problem in the industry and came up with the answer.

The big "75" will be right at home in the spot now occupied by your 42 or 50. No increase in height.

Of course, the 75 cu. ft. Mixer has the same outstanding features as the other GOCORP Mixers—*GOHARD sectional liners . . . GOHARD ribbon blades . . . GOHARD dust hubs and rings . . . manifold water distribution . . . heavy-duty self-aligning bearings . . . "Mix-Timer" equipped—assures minimum mix time . . . air operated discharge door . . . custom-built extras to satisfy individual requirements. Other GOCORP Mixer sizes—12, 18, 28, 42 and 50 cu. ft. capacity.

*GOHARD is a special nickel chrome alloy casting manufactured to GOCORP specifications

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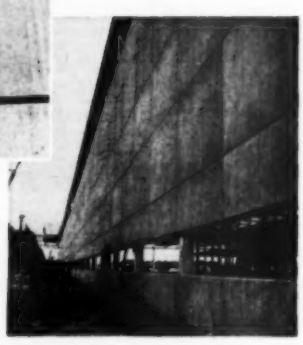


169,000 Sq. Ft. of Precast 'Incor' Concrete Wall Panels in New Grumman Aircraft Plant

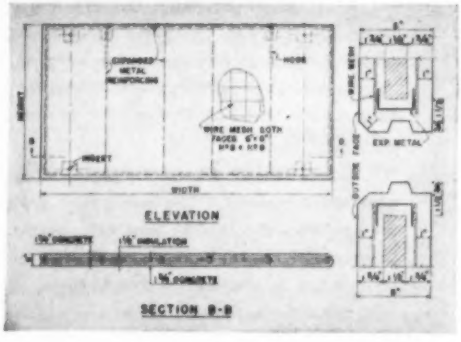
● A sixth Grumman Aircraft plant is being built on a 4700-acre site, on eastern Long Island. The accent is on speed with economy, through the use of 169,000 sq. ft. of precast insulated wall panels, in a complete wall system which is fire-safe, durable, weather-resistant—2500 sq. ft. erected per 7-hour day, with one crane and crew—6 sq. ft. a minute!

Cost is less than usual masonry construction. Size and texture of units give architectural effect and appearance considered by many as superior to high quality cut-stone. Highly-mechanized casting operation gets utmost production speed by using 'INCOR'* 24-HOUR CEMENT. Panels are lifted 18 to 24 hours after casting, placed in curing room for 2 days, then stored in yard. Dependable 'Incor' high early strength assures clock-like schedules.

Another demonstration of assembly-line methods applied to construction—a potential of great significance in the light of today's building costs.

*Reg. U.S. Pat. Off.

Size, texture and quality of panels produces appearance considered by many as superior to high-quality cut-stone—cost is less than usual masonry construction. Above, wall of main building; left, power plant. Panel detail, below.



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The CONCRETE MANUFACTURER

September 1953

About This Issue . . .

NO BROADMINDED individual who is constantly engaged in writing or editing believes for a moment that everything that comes from his desk is significant or noteworthy. But we suspect that all trade journal editors now and then hatch out an article, or perhaps more rarely an entire issue, which they particularly hope will be read and digested by their subscribers. There are a few things in this issue of The Concrete Manufacturer which we believe merit special attention, and we're using our editorial space to point them out.

First, there is the concluding installment of an illustrated article entitled **What Owners, Lenders, and Builders Should Know About Concrete Masonry.** In it we've attempted to set down in layman's language some of the facts about concrete masonry construction which it seemed to us that any one might want to know before building a home for his family, or lending money to someone else for that purpose. We wrote it because it seems to us that a lot of people are still either completely uninformed, or are woefully misinformed, about the suitability of concrete masonry units for residential construction.

Since most of our audience is on the manufacturing and selling side of the fence, it may be felt that we've burned up a lot of energy hauling coals to Newcastle. We've brushed aside this technicality because we believe the block producer himself has not only the best reason, but ultimately the best opportunity, to straighten out people who are misinformed about his product. Our article was at least partly planned to provide a sort of general refresher course on the merits of concrete masonry construction for the benefit of a generation of block producers who have been too busy taking orders to give much time or thought to fundamental selling.

We believe that the end result of our labor has the makings of a useful sales tool for the block industry. A survey we conducted several years ago indicated that many sales in the residential field are lost because some money lenders and builders are still prone to unsell customers who express interest in concrete masonry. **What Owners, Lenders, and Builders Should Know About Concrete Masonry** is primarily a booklet for people who in one way or another influence the ultimate selection of building materials. If our readers in the block industry are pleasantly surprised, as we were, to discover that their product has even **more** sales appeal than they had supposed, we hope they will be interested in relaying the message. To this end reprints of the complete article will be made available to the industry at cost.

TWO new departments are making their debut in this issue. The column headed **Help! Help!** represents a practical test of our theory that there is no such thing as an unsolvable production or procurement problem in the concrete industries. One of the finest traditions of the field is the generosity of people who have found answers to problems in placing their often-hard-won knowledge at the disposal of others. Our new department aspires to become a sort of "Information Trading Post" to facilitate the exchange of such know-how.

AND finally the **Canadian News Letter** appears for the first time in this issue. The concrete industries in Canada are making history, and the purpose of the **News Letter** is to record and interpret events for our readers on both sides of the world's least conspicuous border.

William M. Avery

Another Leader★ IN THE PRODUCTS INDUSTRY PREFERS BESSER VIBRAPACS!

★ This is the 102nd of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

"....We like Besser Vibrapacs because they produce quality block at low cost ....the acid test for any machinery"

The ability to produce quality block, day-in and day-out, at low cost, determines the profit margin of a products plant. That's why the statement above, coming from Central Building Supply Co., is so significant.

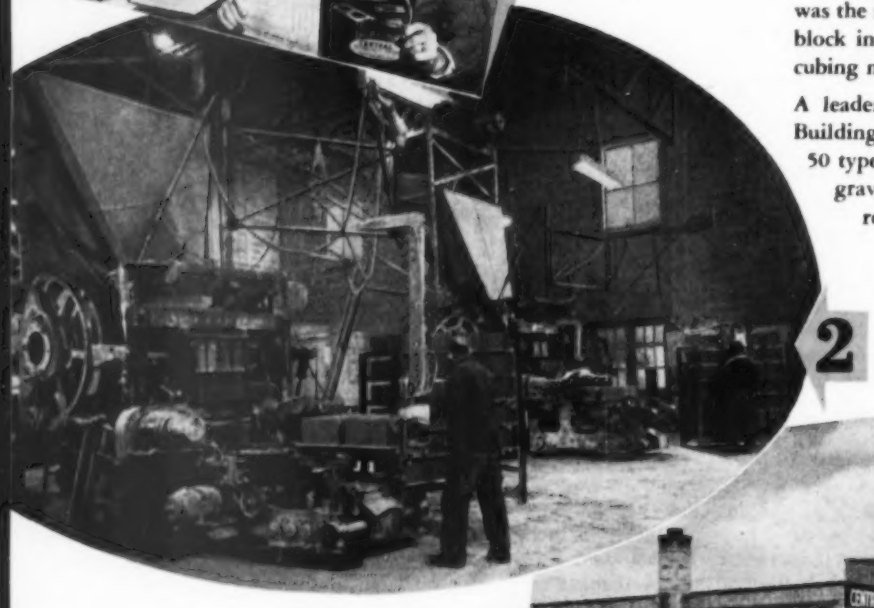
Central Building Supply Co. installed its first Besser Machine, a Victory model, in 1946. This was followed by an Automatic Vibrapac in 1948 . . . one of the first Front Pallet Feed machines designed by Besser. Another automatic Vibrapac was installed in 1950. Central was the first Products Plant to use the new style 2-core block in the Twin City area, also the first to use the cubing method of handling block.

A leader in promoting lightweight units, Central Building Supply Company today produces more than 50 types of block — both lightweight and sand and gravel units, including Soffit Block for floors and roofs — all made on Besser machines.

BESSER MANUFACTURING CO.

Complete Equipment for Concrete Products Plants

ALPENA, MICHIGAN, U. S. A.



1 F. B. Strauss, R. E. Hagstrom and S. C. Dickinson, owners of Central Building Supply Company, St. Paul, Minn., examining new 2-core block bulletin. L. I. Belden, another owner, not shown in picture.

2 Two Automatic Vibrapacs installed in the Central Building Supply Co. plant. One off-bearer at each Vibrapac removes finished block and, with no lost motion, returns empty pallets to the machine. No manual lifting. Off-bearer merely guides the power hoist.

3 Exterior view of the Central block plant. Note great variety of masonry units stock-piled in yard. All block made with Besser Vibrapacs.

BESSER

BATCH MIXERS | SKIP LOADERS | BLOCK & BRICK CUBERS | SUPER VIBRAPAC | SINTERING PLANTS | ACROW CENTERS | ROOF TILE MACHINE

news of the concrete industries

Promotion-Sales Program Approved by N.C.M.A. At Mid-Year Meeting

Sam Paturzo

Plans for an expanded promotion and merchandising program to be undertaken in 1954 were enthusiastically approved by the board of directors of the National Concrete Masonry Association at its mid-year meeting held at Lake Placid, N. Y.

In announcing approval of the new program, Sam Paturzo of V. Paturzo, Bro. & Son, Baltimore, Md., president of the association, pointed out that it includes a well-rounded, aggressive campaign of national advertising and publicity, local merchandising and sales aids, and public relations on both the national and local level. The campaign will be aimed at maintaining and increasing present markets, as well as creating and furthering new uses for concrete masonry products. The plan presented before the board is comprehensive, yet not expensive; it includes well-defined objectives and sound means of accomplishing them. The plan was developed by the promotion committee, aided by professional counsel, under assignment from the board. A brochure outlining details of the program will be sent to N.C.M.A. members within the next few weeks.

In addition to the sessions on advertising and promotion, other committee groups met to discuss technical problems, including high-pressure steam curing techniques and research; and a special committee met to discuss the work of local, state, and regional associations within the parent national association.

Production to Start Soon At Ft. Pierce Rinker Plant

At Fort Pierce, Fla., Rinker Materials Corp. soon will begin manufacturing concrete products in a new $250,000 plant. According to M. E. Rinker, the firm's president, who is also the president-elect of the National Concrete Masonry Association, this plant and the facilities at West Palm Beach together have capacities far in excess of present demands, but the prospect of expansion in this area will justify the new setup.

John Glenton is the manager of the Fort Pierce plant, and Fred Hoskins, formerly the manager at the Rinker block plant in West Palm Beach, is now in charge of the new facilities at Fort Pierce.

Coming Events

September 19-October 2, 1953—Bermuda. Executive committee meeting, American Concrete Pipe Association. Castle Harbour Hotel, Tuckers Town, Bermuda.

September 28-30, 1953—Colorado Springs. Directors' meeting, National Ready Mixed Concrete Association and National Sand and Gravel Association. The Broadmoor.

October 8-10, 1953—Ponte Vedra, Fla. Fifth annual convention and meeting, American Concrete Pressure Pipe Association. Ponte Vedra Inn.

October 8-10, 1953 — Portland, Oreg. Fall meeting, Western Concrete Pipe Association. Benson Hotel.

November 12-14, 1953—Williamsburg, Va. Fall meeting, Southeastern Concrete Pipe Association. The Inn and The Lodge.

January 17-21, 1954—Chicago. Annual convention and exposition, National Association of Homebuilders. Conrad Hilton Hotel.

February 7-10, 1954—Washington, D. C. 34th annual convention, National Concrete Masonry Association. Shoreham Hotel.

February 15, 1954 (week of) — Chicago. 24th annual convention, National Ready Mixed Concrete Association, with machinery exposition. Conrad Hilton Hotel.

44 Member Firms Listed At First Annual Meeting Of Texas R.M.C. Assn.

The Texas Ready Mixed Concrete Association held its first annual meeting in Austin, Tex., on June 26 and 27. H. M Lacy, vice-president of Gifford-Hill & Co., and retiring president of the association, reported an active membership of 44 companies.

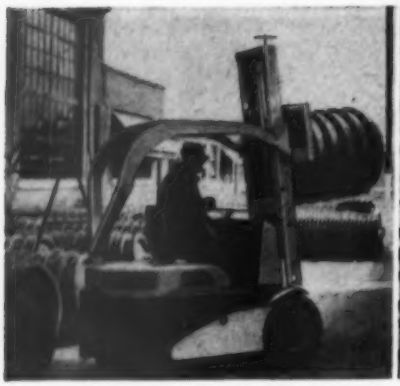
C. S. McLellan, executive director, reported the passage of legislation in the recent state legislative session which permits ready-mixed-concrete trucks to have a tandem axle load of 36,000 lb. for two more years. He also reported the defeat of a proposed bill levying a one percent gross receipts tax on ready-mix production, as well as the defeat of a production tax on all aggregates.

Wick Fowler, noted war correspondent and now administrative assistant to Governor Allan Shivers, was the principal speaker at a luncheon. Wives of the members were escorted on a visit to the governor's mansion. Other recreational events were enjoyed on the two evenings.

The Texas Association has grown during its first year and has been successful in its projects. An office has been established at 907 Congress Avenue, Austin, with C. S. McLellan, executive director, in charge.

Officers for the new year include Scott D. Clark, Brown-Lane Company, Port Arthur, president; and T. L. Amis, Wamix, Inc., Dallas, and J. J. Randol, Fort Worth Sand & Gravel Company, vice-presidents. Directors are H. M. Lacy, Gifford-Hill & Company, Dallas; Weaver Cunningham, West Texas Concrete Products, Odessa; W. A. Kelso, W. A. Kelso Building Materials Company, Galveston; D. P. Wheat, Transit Mix Concrete & Foundation Company, Beaumont; Lawrence Fuqua, South End Building Materials Company, Houston; and N. L. Fox, Valley Ready Mix Concrete Company, Harlingen.

Thomas J. Walsh Sr., vice-president of the Nelsen Concrete Culvert Company, East St. Louis, Ill. died recently after a heart attack. He was president of the Illinois Concrete Pipe Association. In addition to his post with the Nelsen firm he was treasurer of the Concrete Pipe Company, Evansville, Ind.



This Hyster YT-40 is equipped with a ram attachment to handle five railroad car wheels at one time.

Your yard becomes easily accessible storage space with the YT-40. *This is profitable use* of outdoor space!

The Hyster YT-40 is easily maneuverable in close quarters...often in places where hand trucks had been used.

If I had to get along with only one lift truck...I'd choose the HYSTER YT-40

ON PNEUMATIC TIRES • 4000 LBS. CAPACITY

IT GETS MORE JOBS DONE IN MORE PLACES!

And here's why: It's *rugged* and *fast enough* to get *big* outside jobs done in a hurry—yet it's *small* enough to drive easily through crowded quarters indoors. Because it has *big* pneumatic *tires* it can get over the rough spots without spilling my load—also these big tires give plenty of *traction* for pulling through mud and snow. The YT-40 is mighty easy on floors—and it *doesn't wear us out* either! What's more, I've seen a YT-40 work *around the clock*, for *months* with a minimum of attention, other than refueling. If you have to get along with only *one* truck to do all your work *inside* and *out*—you couldn't make a better choice than the Hyster YT-40!

There are many other reasons why the YT-40 is one of industry's most popular lift trucks! But why not let your own Hyster Dealer tell you the whole story? Or you can write for Catalog 1016 to:

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N.C.M.A. Board Meeting At Lake Placid, N. Y. Scene of Much Activity

According to the *N.C.M.A. Reporter*, a considerable volume of work was accomplished at the association's mid-year directors' meeting at Lake Placid in July. Committee sessions held were those dealing with promotion, technical problems, local, state, and regional associations, and high-pressure steam curing. The board also chose a new slate of officers. (See page 214.)

One of the most significant decisions involved the board's approval of a proposed intensive promotion and merchandising program on local and national levels. Ted Leba Jr., N.C.M.A. Washington representative, in his report stressed the numerous government bureaus or agencies responsible for construction.

Phil Paolella, chairman of the local, state, and regional association committee, reported on his group's recommendations for implementing closer ties among these bodies.

During the session of the technical problems committee Benjamin Wilk, Standard Building Products Company, Detroit, Mich., summarized the results obtained in further studies of steam curing at atmospheric pressure. Theodore L. Goudvis, Concrete Masonry Corporation, Elyria, Ohio, presented an illustrated talk on the technical problems his firm had to solve before beginning production on a large order of prestressed concrete masonry roof beams for an Army Air Force warehouse. R. E. Copeland, N.C.M.A.'s director of engineering, reported on the progress of the association's research projects being conducted cooperatively at several engineering schools. R. N. Dills, Arkhola Sand and Gravel Co., Ft. Smith, Ark., reporting for the sub-committee on high-pressure steam curing, outlined this group's plans for a program of research and technical development.

Publication of N.R.M.C.A. On Quality Control Revised

Vincent P. Ahearn, executive secretary of the National Ready Mixed Concrete Association, has announced the publication of the third edition of the association's *Control of Quality of Ready Mixed Concrete*. Free copies have been distributed among the members; and the book is available to non-members at 75 cents.

The first edition of the work, prepared under the supervision of the Technical Problems Committee of N.R.M.C.A., appeared in 1944. In response to reader demand, it was reprinted the following year, with minor revisions. The third edition, prepared by the Engineering Division of the association, includes some new material and important revisions, but it is modeled after the original volume.

New Light Aggregate Sources To Aid Canadian Construction

New lightweight building materials of shale and clay, used as aggregates in concrete, are expected to prove a boon to Canada's construction industry.

The industrial minerals division of the Mines Department which has tested thousands of shale and clay samples from areas spread across Canada, predicts "excellent" results for the product. Deposits are located near most larger cities where construction possibilities are greatest.

Division spokesmen said that the greatest single advantage is a 30 to 40 percent decrease in load weight for structural concretes, and up to 80 percent in load weight for insulating concretes.

After four years of research, a plant at Edmonton is making lightweight concrete aggregate; another is due to start at Ottawa, while plans have been drawn up for still another plant to be located in the southern prairie area.

Use in multi-storied building would be particularly suitable. The division said a decrease in dead weight carried by structural steel framework would mean valuable savings in the amount of reinforcing and structural steel needed. It would improve heat- and sound-insulation properties as well.

American-Marietta Acquires Concrete Plants By Purchasing Eastern Firm

Concrete Products Company of America, producer of concrete pipe and prestressed concrete bridge sections, which operates plants in Pittsburgh, Pottstown, and Williamsport, Pa., was acquired recently by American-Marietta Company of Chicago, manufacturer of paints, chemicals, building materials, and household items.

It was announced that Concrete Products will be merged with the Lamar Pipe and Tile Company, Grand Rapids, Mich., which American-Marietta purchased last May. Plants of Concrete Products will be equipped for turning out Lamar products, and Lamar facilities will be able to supply the prestressed bridge sections and beam designs developed by Concrete Products. For a full report on the operations of the latter firm, see the *Concrete Manufacturer*, December, 1952, page 162.

Internal Revenue Bureau Reverses Policy on Depreciation Deductions

Producers in our field will be interested in the news that the Bureau of Internal Revenue has done a complete rightabout-face on depreciation. Revenue agents have been instructed not to question depreciation deductions unless they are conspicuously high. Whereas the Bureau formerly placed the burden of justifying depreciation deductions upon the taxpayer, it has now decreed that in a questionable case, the taxpayer will be given a break. We quote from the Bureau's statement:

"1. The Internal Revenue laws allow as a deduction in computing net income a reasonable allowance for depreciation of property used in trade or business or of property held for the production of income. The purpose of the deduction is to permit taxpayers to recover through annual deductions the cost (or other basis permitted by law) of the property over the useful life of the property. The determination of the amount of the deduction is largely a matter about which there may be reasonable differences of informed judgment, but the impact on the revenues resulting from these differences may be negligible one way or the other over the years involved.

"2. Accordingly, effective May, 1953, and as respects all open years for which agreement as to the tax liability has not been reached at any level within the Internal Revenue Service as of that date, it shall be the policy of the Service generally not to disturb depreciation deductions, and revenue employees shall propose adjustments in the depreciation deduction only where there is a clear and convincing basis for a change. This policy shall be applied to give effect to its principal purpose of reducing controversies with respect to depreciation" (IR-Mim. No. 183 5/11/53.).

The Bureau's instructions to field offices on the new policy are as follows:

"Among the factors which should be given careful consideration in order to give full force and effect to the announced policy are the following: (a) Whether depreciation rates used by the taxpayer are fair and reasonable under the circumstances; (b) Whether the taxpayer has followed a consistent practice in arriving at the amount of depreciation deductions; (c) Whether in considering all factors, including reasonable tolerances, any adjustments proposed are substantial.

"In the establishment of the depreciation rates for a taxpayer, careful consideration shall be given to facts and arguments presented by the taxpayer with respect to obsolescence, as well as to the repair and maintenance policy of the taxpayer.

"If the proposed depreciation changes are material and the revenue employee and the taxpayer cannot reach an agreement, the issue may be referred, prior to the issuance of a 30-day letter, to a valuation engineer, if available, for consideration; otherwise the Engineering and Valuation Branch, Washington, D. C., Attention T:S:E:. should be requested to furnish the required engineering service" (IR-Circular No. 144, 5/11/53).

Under Secretary Folsom of the Treasury Department said, "We hope to be able to permit greater discretion by management in the timing of depreciation deductions. . . . The problem is one of the method of change and the timing of its adoption. Some liberalization may be made in the regulations, while others may require legislation." The Bureau's new ruling is the first step along these lines.

The ruling applies to all open years for which a settlement on disputed tax liability has not been reached. In general, if your method of computing depreciation is economically sound, it is safe to continue using it.

That's the kind of service you can give with the Cook Bros.-Challenge, 6½ cu. yd. legal payload, Truck and Mixer combination, shown above. Eight (8) of these units operated by Consolidated Rock Products Company, Los Angeles, California, delivered 742 cubic yards of concrete in an eight hour shift (7 A. M. to 3 P. M.) to T-S Construction Engineers, Inc., contractor, during construction of a 3 level parking structure. The trucks were driven 2.4 miles through city traffic between batch plant and pouring site. What's more, there were a total of 9 separate pours of concrete on this job that were over 700 cubic yards delivered in an eight hour period.

It's performance like this that has put Challenge **out front** . . . get detailed information on the complete Challenge line NOW!

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Help! Help!

THE editors of THE CONCRETE MANUFACTURER carry on a voluminous correspondence for the purpose of bringing together those who want to buy and those who want to sell various kinds of equipment, materials, and services. Every now and then, however, some reader will request help in connection with a supply problem for which we have no answer, and we are opening this new department in the hope that other readers will come to the rescue. Readers who can suggest a source of supply for the items described below are requested to write to THE CONCRETE MANUFACTURER, Help! Help! Department, 431 South Dearborn St., Chicago 5, Ill., or use one of the convenient inquiry cards bound in with each issue of the magazine. All the information which is sent to us will be promptly forwarded to the originators of the requests.

This month we have a producer in Ohio who would like to know the names and addresses of several sources of mica spar to be used for facing masonry units, coping, piers, caps, and similar items. He is under the impression that some years ago he obtained a shipment of such material from a firm in New Hampshire.

A reader in New York state asks for help on a somewhat similar problem. He wants to establish a source of black or dark gray "sand" to be used, we assume, as a facing aggregate in the production of precast concrete, urns, vases, flower boxes, and bird fonts. According to his description, the material isn't actually sand, but is more probably a crushed granite, quartz, mica crystal, mica shist or slag granule. He believes similar materials are used by some of the companies in the Perma-Stone field.

Finally, we have a letter from a concrete products firm in Missouri asking for the names of companies which manufacture fence-post molds similar to those described in our July article on the Livesay Window Co. of Miami. This Florida concern makes its own steel molds, but we feel pretty certain that somebody in the equipment field can supply a standard mold.

Safety Council Publication Gives Accident Statistics

Occupational accidents in 1952 cost American industry $45 per worker, according to the National Safety Council's statistical annual, *Accident Facts*. Just off the press, the 1953 edition points out that 15,000 persons were killed and 2,000,000 injured while at work in 1952. The total time lost as a result of occupational injuries reached the staggering total of 250,000,000 man-days.

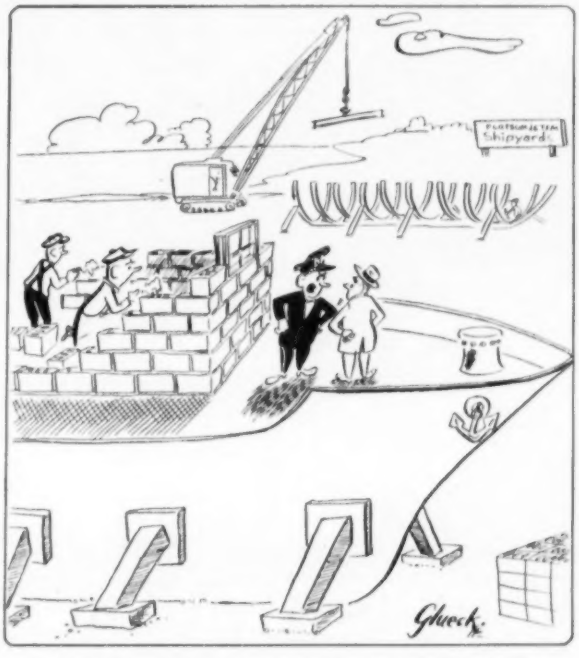
A section of 20 pages is devoted exclusively to occupational accidents; and the factual background necessary to give direction to an industrial safety program is provided. Included is a detailed list of accident rates by major industry groups. Charts show the accident trend during the last 25 years.

In addition to the occupational section, detailed statistical information is provided on accidents of all types—motor vehicle, transportation, home, farm, and school. Single copies of the book may be obtained from the National Safety Council, 425 North Michigan Ave., Chicago 11, Ill., at 75 cents each. Prices are reduced for quantities.

Slab Forms Now Available For Making Ersatz Lawns

Millions of homes are market places—so says the letterhead of the William M. Chase Company, a Buffalo, N. Y., firm which turns out slab forms for quantity production of concrete slabs. It is Mr. Chase's contention that in communities where grass lawns do not thrive naturally (in some parts of Florida, for example), concrete slabs such as those produced with these forms will "sell themselves" if offered to harassed home-owners as a means of covering bare, unsightly "yards".

As suggested in numerous sketches circulated by the firm, there are also other applications for the slabs, which may be used in small chimneys, backyard fireplaces, garages, walks and outdoor steps, fences, walls, and even railroad ties.



● "My superstructure is gonna be of permanent stuff!"

Robert R. Shapland has been appointed manager of the East St. Louis, Ill., plant of the Nelsen Concrete Culvert Company of Champaign, Ill. Mr. Shapland replaces the late Thomas J. Walsh.

Concrete Masonry Units Dramatize Desert Home In Arizona Setting

ONE of the most unusual applications of concrete masonry in this country is the home designed by Frank Lloyd Wright for his son David Wright near Phoenix, Ariz. Dramatic in every detail, the strange and exciting structure, as pictured and described in the June issue of *House and Home*, has a circular form which in this desert setting suggests a coiled rattler.

In this newest exponent of Mr. Wright's individualism he has dramatized four principles: that any material . . . should be treated with respect—and that it pays to do so; that the straight line is often just a shortcut used by "paper architects"; that a house is something you experience by living in it, not looking straight at its "facade"; and that a house must grow out of its natural setting.

Views of the house show that standard and special units make an extremely effective and handsome building material. Wherever the blocks are exposed to the weather, they are waterproofed with silicone-base paint. Decorative effects were achieved with units cast in handmade aluminum forms. Since David Wright is the area representative for "Vibrapac" concrete block machines, he was of invaluable assistance to his father; he also acted as his own contractor.

To point up the second "principle" demonstrated in this house of circles and coils, the designer deliberately planned a structure that has no 90-degree angle. Hence, there are no "boxlike" rooms in it. "He was able to destroy it (the box) completely," it is pointed out, "because he found that concrete blocks were almost as easy to lay in curves (with reference-radii and templates) as in straight lines. All you have to do is use short blocks for tight curves, and standard rounded blocks for circular piers."

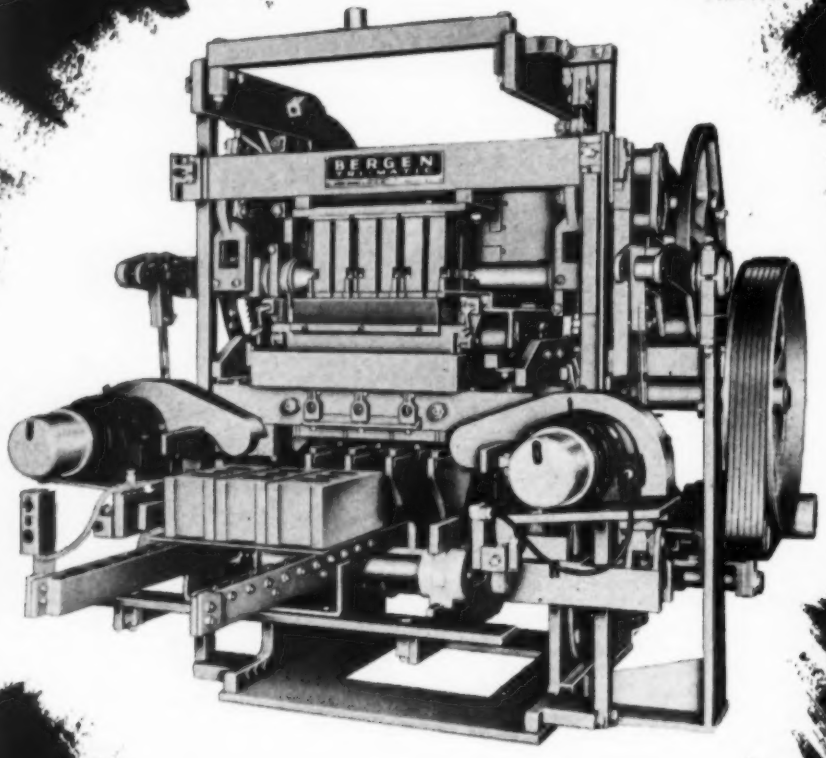
A new departure from Mr. Wright's standard straight in-line plan, the curved in-line plan which he followed in this design provides the advantages of "pie-shaped" rooms with individual views and corridors that seem deceptively short because of their curves. All this is not at first apparent; one must "experience (it) by living in it."

In creating a house that grows out of its natural setting, Mr. Wright sought to make it "a part of the desert, a plant that grows out of the earth and turns its face toward the sun." Actually, it is a structure built on piers "and yet rooted to the soil, a house as light as air and yet as secure looking as a desert rock."

The living room fireplace has a concrete block lintel of U-shaped blocks filled with reinforced concrete. The piers are shafts of standard block filled with concrete which support a daring cantilever floor; so there were few forms to discard.

1,000 BLOCK per HOUR

(8" EQUIVALENT)



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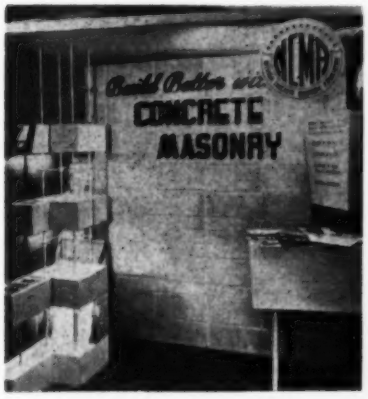
N.C.M.A. Products Display Awarded First Prize At A.I.A. Convention

The National Concrete Masonry Association was awarded first place in recognition of its products display at the 85th annual convention of the American Institute of Architects, which was held in Seattle on June 15, 1953.

Judging was based on the product story, the application, and end results. First place award was for the best products display. The N.C.M.A. booth was both attractive and informative. A background wall of concrete masonry finished in pastel paints indicated the decorative possibilities of the material. A partially completed side wall showed methods of tying block together with reinforcing steel.



This award was one of four given at the exhibition, which was a part of the Producers' Council exhibit at the Olympic Hotel. Members of the National Concrete Masonry Association in the Seattle area co-operated to produce this display for the association.

Do You Know Your Status Under Social Security?

Eighty percent of all workers in the United States are engaged in employment covered by social security and are building an insured status under the old-age and survivors insurance program, according to Thomas M. Galbreath, manager of the Chicago social security office.

About 25,000,000 workers have been in jobs under social security long enough to be assured of retirement benefits for themselves at 65 and survivor benefits for their families. Four out of every five mothers and children are protected under the program in the event of the death of the family breadwinner, Mr. Galbreath stated.

For the workers over 65 who retire and for the survivors of workers who die at any age, the old-age and survivors insurance program provides substantial monthly benefits. In those cases where benefits may be based on the average earnings since 1950, the average monthly payment for a retired worker without dependents is about $65; for an aged couple, somewhat more than $100; and for a widow with two children, about $150.

Since these benefit payments provide such important income for the retired worker and his family and for his survivors in case of his death, each worker owes it to himself and to his family to know just what his status is in this insurance program; to know what, if any, protection he is providing for himself and for his family through old-age and survivors insurance. He can best get this information, Mr. Galbreath indicated, by discussing his own personal case at the nearest social security office.

A $653,689 bid submitted by the United Concrete Pipe Corporation, Baldwin Park, Calif., was approved by the city council of Tucson, Ariz., for main transmission pipe lines for the city's $5,500,000 water expansion program.

First Southern Home Show Slated for March, 1954 At Greenville, So. Carolina

The first annual Southern Homes Show has been scheduled for March 22-26, 1954, in Textile Hall, Greenville, S. C., home of the Textile Hall Corporation, which for over 35 years has been putting on big biennial machinery shows of the textile industry.

According to corporation officials, the primary purpose of the home show is "to afford Southern home owners and planners an opportunity to see innovations in materials and techniques just as soon as they are shown in centers like Chicago and New York.

● The Universal Concrete Pipe Company awards service pins to its employees at the 5-, 10-, 15-, 20-, and 25-year levels. This photograph shows such a group of "old-timers" with Executive Vice-President H. E. Eschenbrener Jr. (front center), who made the presentation at a service award banquet held recently at Columbus, O. The group includes executives and office and plant employees who received the service pins.

● In line with the current industrial renaissance of Japan, that country's ready-mixed concrete industry is enjoying a period of tremendous expansion, as evidenced by the picture above. Here the first of a group of six Hi-Lo truck-mixers is being lifted from the hold of the "U.S.S. President Cleveland" in Tokyo Bay. The units, manufactured by Concrete Transport Mixer Company of St. Louis, Mo., were sold by their international sales representatives, Engineering Equipment Company of Chicago, and will form a part of the fleet of the Hitachi Concrete Company of Tokyo.

Rinker Elected to Head N.C.M.A. as '54 President

M. E. Rinker, well known Florida concrete block manufacturer, was named president-elect of the National Concrete Masonry Association for the coming year at that organization's mid-year directors' meeting. Mr. Rinker will move up from a vice-president's post to head N.C.M.A. He will take office in January, 1954.

Other newly elected officers include three vice-presidents—R. I. Lampus, R. I. Lampus Company, Springdale, Pa.; W. R. Ireland, Birmingham Slag Company, Birmingham, Ala.; and S. Carl Smithwick, Smithwick Concrete Products, Portland, Oreg.

Carroll Strohm Jr., Nashville Breeko Block and Tile Company, Nashville, Tenn., continues as secretary-treasurer. These officers will serve for the year 1954.

G. F. Steigerwalt Appointed To Western Gocorp Staff

G. F. Steigerwalt

The Gene Olsen Corporation has announced the recent appointment of G. F. Steigerwalt to represent them in California, Oregon, and Washington.

Mr. Steigerwalt's first position was with the highway and municipal departments of Iowa and Idaho from 1917 to 1922. Subsequently he became affiliated with the Portland Cement Association and served as a general field man in Montana. His first experience in the manufacture of concrete products was gained at a products plant in Missoula, Mont.

From 1926 to 1938 he was with the P.C.A. general office in the concrete contractors schools and sales promotion. From 1939 to 1940 he worked at the P.C.A. office in San Francisco, devoting his time to concrete products and concrete construction.

In 1940 he started the Haydite Concrete Products Company at San Rafael, Calif., which he owned and operated until 1952.

Mr. Steigerwalt will be located at 87 Deer Park Avenue, San Rafael, Calif., and will represent GOCorp's five models of concrete block machines, six models of batch mixers, and skip loaders and allied equipment.

Housing Starts Decline To 103,000 in June—4% Drop

Nonfarm housing starts totaled 103,000 during June, a seasonal decline of about 4 percent from May, and nearly the same number as were started in June, 1952, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics. Privately owned housing starts were down by 3,800 units from May to a June total of 100,400; and the 2,600 public units begun in June were about 200 under the May estimate. Despite declines in the last two months, June marked the fourth consecutive month this year that total housing starts exceeded the 100,000-unit level.

The total number of new permanent nonfarm dwelling units begun during the first half of 1953 (577,100) is about the same as the final figure for January-June, 1952; but private housebuilding this year (549,200 units) was 5 percent ahead of 1952 during each of the first and second quarters. New public housing has declined sharply in volume since March, and by the end of June totaled about 28,000 units—a 37 percent drop from the 44,100 units begun during the first half of 1952. The decline has been entirely in federally subsidized low-rent units, which have been accounting for the bulk of the new public units put under construction since early in 1950.

The fiscal year in public housing ended with 34,800 new dwelling units started under the federally subsidized low-rent program, 7,000 under the various state and local programs, and about 500 by the Federal Government at military and federal industrial sites. Federally subsidized low-rent projects during the last fiscal year were most numerous in the South, East, and Pacific regions and in small localities; but the largest proportion, in terms of units, were in large cities and in the East.

Final reports on housebuilding in March boosted the starts estimate for that month from a preliminary figure of 97,000 to a final 105,800-unit total. The upward revision reflected supplemental reports showing a flurry of activity in rural nonpermit-issuing places during March, plus more complete reports of activity in building-permit-issuing places.

The June, 1953, decline in private housebuilding occurred mostly in the New England, South Central, and Pacific states. Preliminary building-permit reports indicate continued gains in the Middle Atlantic states, although the rate of increase was somewhat less than in earlier months this year.

Bermuda Trip Sponsored By A.C.P.A. Executive Body

Plans are going forward for the Bermuda trip sponsored by the American Concrete Pipe Association in connection with its executive committee meeting. The group will leave New York on the *Queen of Bermuda* on September 19 and will return on October 2. Some members who have made reservations will return to New York earlier by air, since daily flights are scheduled.

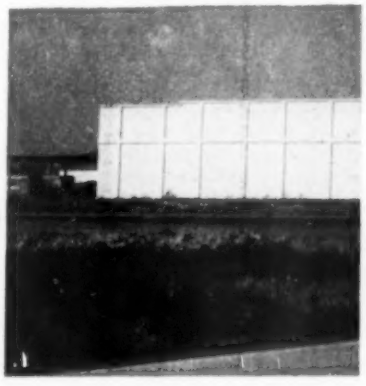
Headquarters of the meeting will be at the Castle Harbour Hotel, Tuckers Town, Bermuda, which has good facilities for swimming, golf, and other recreational activities. All members of A.C.P.A. are invited to joint the group.

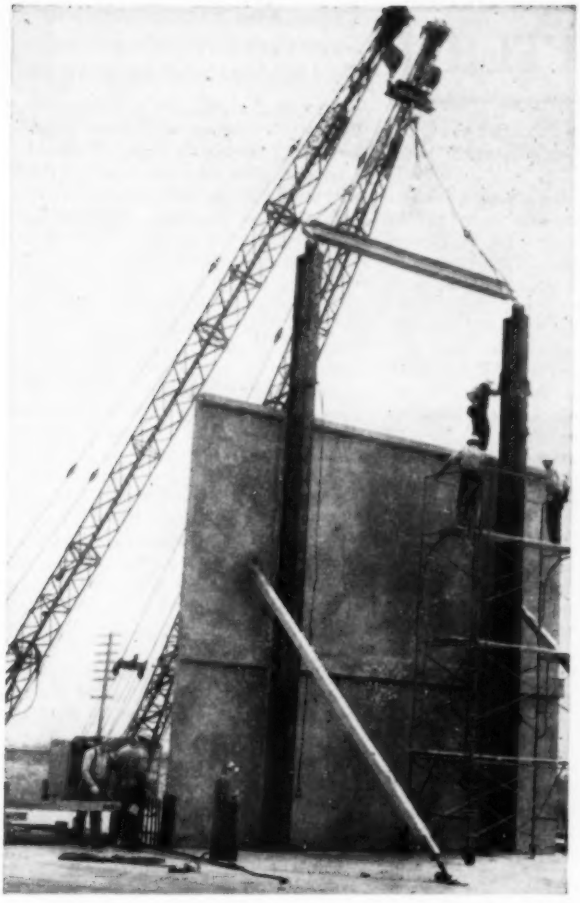
At the Industrial Packaging and Material Handling Exhibit to be held in Boston October 20 to October 22, the Industrial Division of Gould-National Batteries, Inc., will introduce a new, improved type of grid developed at the research laboratories at Depew, N. Y. In addition several types of batteries for materials-handling service will be available for examination by visitors.

The advertisement on the right hand page, addressed to architects and engineers, appears in Architectural Record, Engineering News-Record, Western Construction and Southwest Builder.

Because anyone can try to build a Truck Mixer . . .

it is essential to identify, by Rating Plate, those which meet the industry's quality standards. Architects and engineers accept this Rating Plate. It is important to you to demand it on any truck mixer or agitator that you buy.





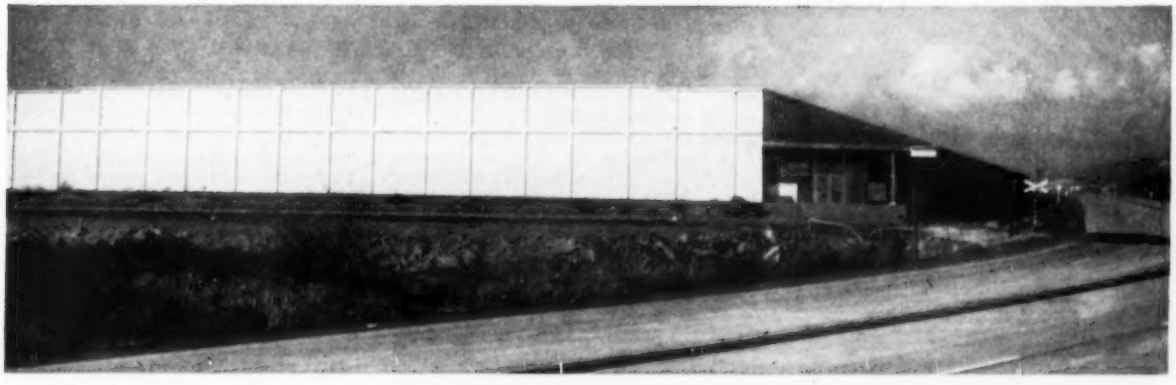
Panels are 6″ thick with 12″ integral beams. By seizing strongbacks attached to panel, 2 cranes lifted and keyed a panel into the floor slab in 4½ minutes. Third crane removed strongbacks. Hinged braces, bolted to floor plates, held panels until joined by 2′ pilasters.

Meet a building code, save money, and tilt up 600′ of wall in a day

In compliance with Seattle's exacting code, and more economically than with masonry or form concrete, this 1000′ x 330′ warehouse was built of 32′ x 30′ concrete wall panels, flat cast on the loading platform surrounding the site. Three cranes, two outside and one inside the building, handled the 35-ton panels, erecting as many as 20 in one day.

Flat casting and tilt-up is now a common procedure, especially in the West. Its extensive use of ready-mixed concrete, poured on the site, further indicates why properly proportioned concrete must also be properly processed — in truck mixers of *certified* design, capacity, mixing speed, mixing action and accurate water control.

Construction Methods Photo



Look for this Badge of Dependability on Truck Mixers:

4½ CUBIC YARD MIXER
GUARANTEED TO HOLD MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY NRMCA
6 CUBIC YARD AGITATOR

You have a right to insist on this Rating Plate on any truck mixer that serves your jobs. It is available to all who comply with the quality standards which have been established by the Truck Mixer Manufacturers Bureau and approved by the National Ready Mixed Concrete Association.

These member manufacturers comply with Bureau standards:

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Chain Belt Company
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Concete Transport Mixer Co.
St. Louis, Mo.

Construction Machinery Co.
Waterloo, Iowa

The Jaeger Machine Co.
Columbus, Ohio

The T. L. Smith Co.
Milwaukee, Wis.

Worthington Corporation
Plainfield, N. J.

CANADIAN NEWS LETTER

CANADIAN concrete products manufacturers are again facing a shortage of cement this year, a situation that seems to have become chronic despite large expansion programs on the part of the country's two biggest producers, Canada Cement Co. Ltd., and St. Mary's Cement Co. Ltd. Total production of the industry this year will be about 22,000,000 bbl., about 2,000,000 bbl. short of demand.

Back of the shortage is Canada's tremendous postwar expansion, which is so big that even many Canadians do not fully realize its immensity. Defense construction alone has accounted for 25 percent of the output of Canada Cement, the giant of the cement producing industry in Canada. The Ontario and Quebec hydroelectric power companies have also been big users, and British Columbia's industrial expansion has meant still more demand for cement.

J. M. Breen, president, Canada Cement Co., Ltd. (left) and J. P. Counsell, sales manager of Alfred Rogers Ltd., sales agents for St. Mary's Cement Co., Ltd. Both cement companies are expanding their facilities in order to meet Canada's serious cement shortage.

This will probably be the last big year for defense construction, but home building alone promises to more than fill the vacuum. Economists predict that Canada will have 23,000,000 people within 25 years, 9,000,000 more than at present. This will mean that 2½ to 3,000,000 homes must be built, a big task for a small nation. Population has increased by 30 percent since 1939.

To meet the demand for cement, Canada Cement has spent $45,000,000 since the war's end, and has increased production from 10,000,000 to 17,500,000 bbl. annually.

A small but promising alleviating factor in the cement shortage is the recent entry of the North Star Cement Co. of Newfoundland into the field. This company must satisfy Newfoundland's demands first, but has 40,000 tons left this year for disposal on the Canadian mainland. Cement is brought in by boat, up the St. Lawrence River and as far west as Sarnia, Ontario, at the head of Lake Ontario. The company can guarantee a constant price and supply.

The shortage of cement has been one reason for the growth and strength of the National Concrete Products Association of Canada, this organization having issued repeated warnings against the entrance of too many concrete products manufacturers into the field. Allotments to block and brick manufacturers are still necessary, and the cement producers have a backlog of orders. The concrete products industry in Canada has made a spectacular jump in five years, from a $3,000,000 business in 1939 to a $90,000,000 one last year.

THE annual meeting of the National Concrete Products Association of Canada will be held early next year, January 25 and 26, at the General Brock Hotel, Niagara Falls, Ontario. It will include an exhibit of concrete products manufacturing equipment, for which arrangements are already being made. It is expected that several United States equipment suppliers will exhibit, and that many visitors from the States will be present at the convention, as in the past.

FORD Company of Canada recently opened a new plant near Toronto, Ontario, in which they made use of 860,000 eight-inch backup concrete bricks, supplied to them by Scott Building Products of Welland, Ontario.

The new assembly plant, largest industrial building of its kind in Canada, sprawls over 32½ acres, and cost about $32,000,000 to build. More than 50,000 cu. yd. of concrete was used in construction. The first car rolled off the assembly line in May, about a year after the plant was begun. The plant in full production will employ about 4,000 workers.

Ford Company of Canada's new plant near Toronto, in which 860,000 eight-inch backup concrete brick were used.

Expanded Shale Institute Sponsors Extensive Study Of Lightweight Aggregates

Structural concrete performance of lightweight aggregates from fourteen states and Canada is being correlated in a research program under way at the University of Toledo. This program is sponsored by the Expanded Shale Institute, and is under the direction of Professors E. L. Saxer and John Seldon of the University of Toledo Research Foundation.

Members of the Expanded Shale Institute's technical committee, along with Frank G. Erskine, managing director, will act in advisory capacity. The technical committee members are Cedric Willson, Texas Industries, Inc., Dallas, chairman; George Bickel, The Featherlite Corporation, Dallas; W. W. Allen, Jr., Hydraulic-Press Brick Co., St. Louis; William Thomas, McNear Brick Co., San Francisco; I. P. Brettell, Cooksville Co., Ltd., Toronto; Carleton Smithwick, Smithwick Concrete Products, Portland, Ore.; William Poston, Poston Brick and Concrete Products, Springfield, Ill.; and Philip Comstock, Kentucky Light Aggregate, Inc., Louisville, Ky.

S. Carl Smithwick, president of the Institute, said that this is one of the most extensive undertakings of its kind with this material. The research program is part of a general plan of the Expanded Shale Institute to gather information on lightweight aggregates and make it available to the entire building industry.

Expanded shale has been produced for more than thirty years. It is recognized as one of the outstanding lightweight aggregates by the construction industry. In addition to affording heat and sound insulation, it has structural strength comparable to heavyweight concrete.

The Institute, which maintains an office in the Warner Building in Washington, D. C., is headed by Frank Erskine, a professional engineer who was formerly with the Washington office of the Portland Cement Association. It was organized only last year but already includes in its membership the majority of all the larger and all of the older producers in the country. Its purposes are briefly, to improve and extend the uses of expanded shale by research and experimentation and by providing authentic data to the building industry, to maintain standards of uniformly high quality, and for promotional and technical research.

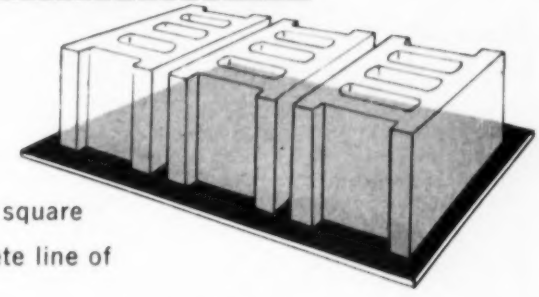
In making the analysis for the Expanded Shale Institute its engineers will use a blend of four portland cements for all concrete specimens. Aggregates will be separated on standard screens and recombined to a uniform grading. Tests will be performed to determine this uniform grading.

Four mixes of 2½-in. slump containing four, five, six and seven sacks of cement per cu. yd. will be made with each aggregate. A 3- by 4- by 16-in. specimen has been selected for its versatility in research. In addition to flexure and compressive strengths, shrinkage and sonic modulus will be determined.

It's *plain* as the nose on your...

It's a *steel* to sell them for so little

Guaranteed flat *pallets* for



You'll be amazed at the value! Durable, longer-lasting plain steel pallets! Sizes to fit your own block machines. Perfectly flat, square and true... no excess burrs! Also a complete line of sturdy steel block racks. Write for information!

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Please send me a quotation on the quantities I have indicated below! No obligation, of course!

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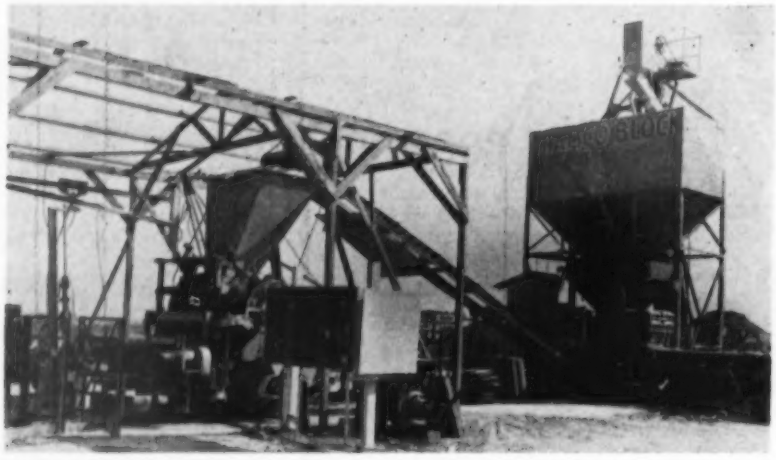
Barracks Project in California Calls for Nearly 900,000 Units

By HARRY F. UTLEY



The new Chamco (California Homes & Materials Company) plant at Salinas, Calif., just prior to roofing over the block machine.

another ON THE SPOT report

CALIFORNIA Homes & Materials Company, volume producer of "Chamco" concrete blocks in the Los Angeles area, expanded the scope of its operations a few months ago when it erected a plant at Salinas, Calif., 300 miles north of Los Angeles.

The Salinas plant was established primarily to supply nearly 900,000 units for a barracks construction program at Fort Ord, 11 miles distant, the contract having been won on a competitive bid basis. Involved in the Fort Ord job are both 8- by 8- by 16-in. and 4- by 8- by 16-in. pumice-aggregate units, utilized in the 8-in. filler walls in the reinforced-concrete frames of 31 barracks buildings. The masonry walls are reinforced both vertically and horizontally, vertical rods being grouted into the block cores on 16-in. centers.

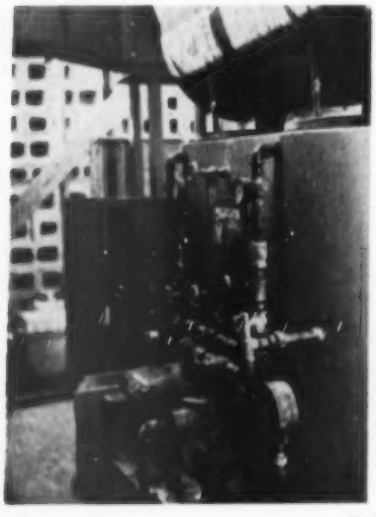
The Fort Ord project is typical of the government's plan to discard the old method of portable or semi-permanent barracks construction, utilizing permanent construction in all major establishments which are currently under way or planned for the future.

The Salinas plant was set up adjacent to the batching plant of the Pacific Material Company. A Besser Super Vibrapac molds the blocks. The three curing rooms are of special interest, having been prefabricated of waterproof marine plywood in sections at the company's Duarte, Calif., shops, trucked to Salinas, and quickly assembled on a concrete slab previously provided. They can be taken down just as quickly and moved to another location if the occasion demands; however, present plans are to continue the Salinas plant as a commercial venture after completion of the Fort Ord contract.

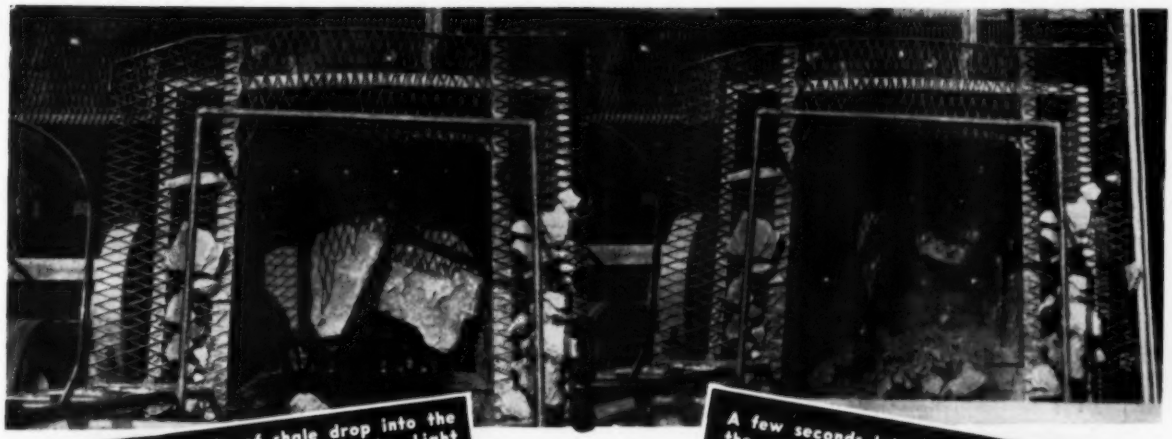
Steam for curing is furnished by a Francis 25-hp. generator. A drum-type heat exchanger and fan have been mounted on the top of the steam generator to utilize waste heat, which is blown into the curing rooms after steam curing is completed through a system of sheet-metal ducts. The drying of the units after steaming is in accordance with current requirements of the Corps of Engineers, which is directing the Fort Ord construction program. The contract calls for delivery of the units with moisture content not in excess of 30 percent of the maximum absorptive capacity of the blocks.

General contractor at Fort Ord is the Del E. Webb Construction Company of Phoenix. E. A. Wikholm of Inglewood, Calif., is the subcontractor on the masonry filler walls. Ready-mixed concrete for the framing, supplied by Granite Constructors of nearby Watsonville, Calif., involves a total of about 75,000 cu. yd. Joseph Grant is in charge of Chamco block-plant operations at Salinas. Col. R. W. Heilig is resident engineer for the San Francisco District, Corps of Engineers.

The 25-hp. generator which supplies steam for curing. The horizontal drum above serves as a heat exchanger to dry the units after curing.



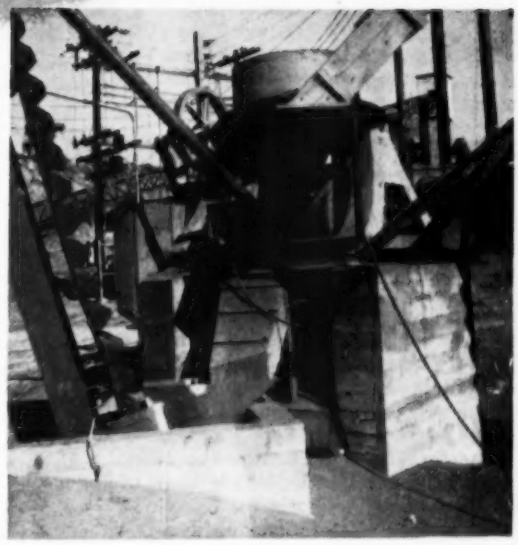
The three-room curing structure was prefabricated of waterproof marine plywood, trucked to the site in sections, and quickly assembled, ready for service.



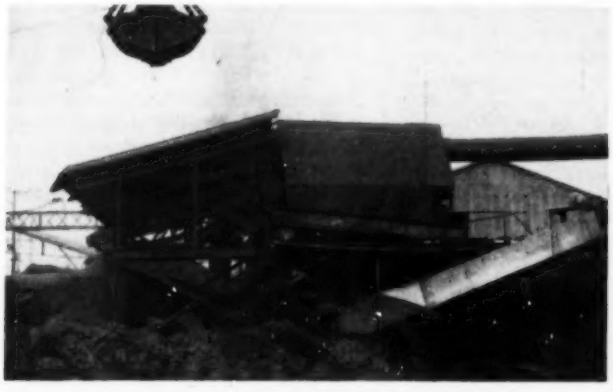
Two large chunks of shale drop into the Eagle shale crusher at Kentucky Light Aggregates, Inc.

A few seconds later and they're through the crusher in small pieces—sizes easy to burn in the kilns.

COST CUTTING EQUIPMENT FOR *Lightweight* AGGREGATE PRODUCERS



Lightweight aggregate producers all over the country are cutting costs with Eagle Clay Crushers—because they reduce even the toughest shales on a tonnage basis. Exclusive slow turning feed-in roll and opposing fast turning reduction roll—both with spiral hooked teeth—do the trick. Cutter—hammermill—crusher action nothing like it. Up to 100-tons per hour with the Eagle Standard—up to 200-tons per hour with Eagle Senior crusher. Get the facts today—send for Bulletin 952.

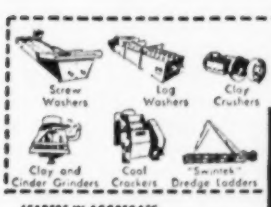


EAGLE SCREW WASHERS

Eagle Screw Washer is used by Carolina Tuff-Lite Co., Salisbury, N. C., to wash and classify sintered shale to remove excess fines. Cinder Concrete Products Co., Kansas City, Mo., uses Eagle Washer to give cinders a lime water bath to seal in iron compounds in cinders to prevent "staining" in concrete blocks. The Eagle unit also dehydates the lime coated material.

EAGLE GRINDERS

Eagle Grinders are cutting costs too, at lightweight aggregate plants. No screens to clog. Readily adjustable pan rim discharge—a smooth flow of minus ⅜" mesh aggregate—day after day. Low maintenance and operating costs.



LEADERS IN AGGREGATE WASHING AND CLASSIFYING EQUIPMENT FOR HALF A CENTURY

EAGLE IRON WORKS

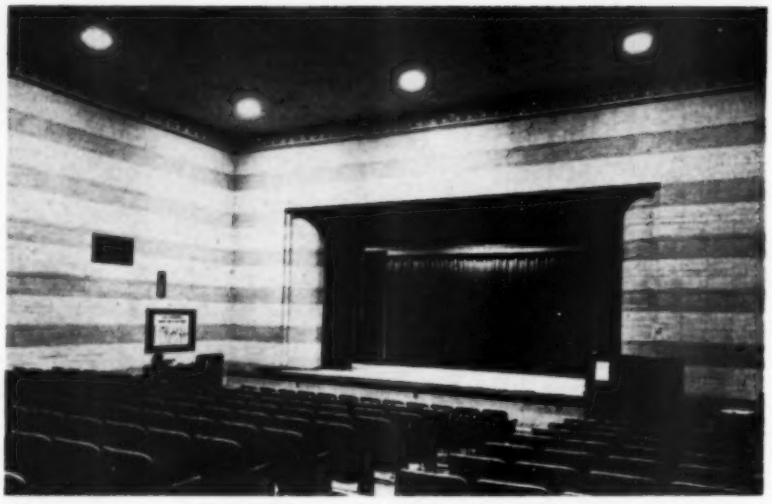
133 Holcomb Ave., Des Moines, Iowa

What Owners, Builders, and Lenders Should Know About Concrete Masonry

PART II
HOMES OF CONCRETE MASONRY

By WILLIAM M. AVERY

There is no precedent throughout history for the intense and sustained interest in the home that exists at all income levels in the United States today. It is a product of many phenomena that we like to regard as peculiarly American—modern financing, which has brought the deep satisfaction of home ownership within reach of all families; our firm belief that every man is entitled to enjoy to the utmost the fruits of our bountiful economy; our great strides in the reduction of the hours which men must work to support their families, thus making available both time and energy, as well as the financial means, for the enjoyment of home life.



Their excellent accoustical properties make lightweight units a natural for the interior surfaces of auditoriums, as well as for homes.

The depressed 30's had inevitably failed to create even the minimum replacement needs in the housing field, and untold thousands of dwellings became substandard as a result of prolonged neglect; but by 1942 there was definite evidence of a building boom in the making. It was stopped cold by the onset of World War II, and throughout the war years a rationed and suddenly homesick nation was reduced to dreams of the better life. For half a decade American families planned and studied and saved for the homes they would build. The desire for better, roomier, and more functional housing, preferably at some distance from large cities, reached fever pitch by the end of the war.

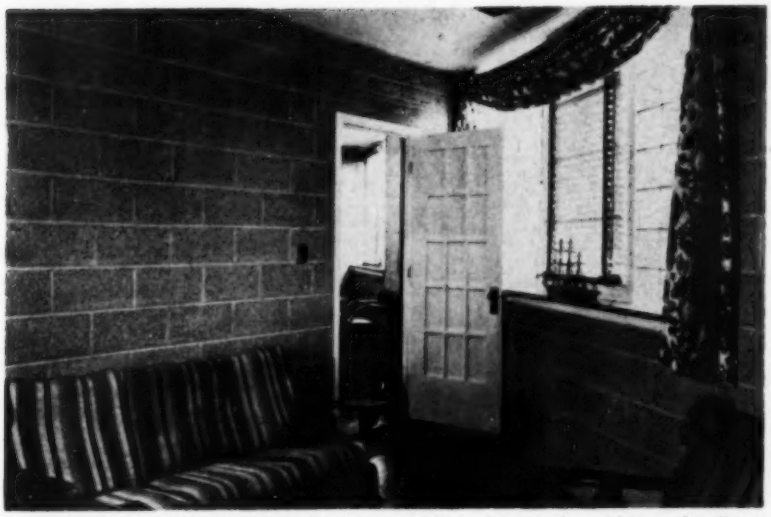
The home seeker of the post-war era was (and is today) an altogether new and strange phenomenon—better informed about materials, more certain of what he wanted and equally certain of what he didn't want, and far less inclined to accept just four walls and a roof, than any home buyer in history. He wanted more than mere shelter that might or might not outlive the 25- or 30-year mortgage that helped created it. Out of his dreams and his avid reading of periodicals devoted entirely to the subject of homes he had evolved some new concepts. Among these was the fairly revolutionary notion that a home should and could be attractive and functional, fully durable for long years of service, fire-resistant and termite-proof, warm in the coldest winter weather, cool in the hottest summer weather, and economical to build and maintain.

Homes built of lightweight concrete masonry units had been meeting just such rigid standards for a number of years and had won a large measure of acceptance in certain areas of the country. Since its initial introduction early in the century the product had undergone steady improvement, and architects and builders had gradually acquired some finesse in the use of the material. But it remained for the post-World War II home building splurge to tear the lid off the market for concrete masonry units and to demonstrate that the product constituted the soundest construction medium ever offered.

Appearance Let us consider in orderly sequence the properties of concrete masonry that are of primary interest to home owners, assessing the significance of each such property in terms of how it affects the structure itself. The matter of appearance is a good point from which to start, for the first and most enduring impression created by any home is a function of its eye appeal. In respect to appearance, concrete masonry is by a wide margin the most versatile material available today. It is readily and completely adaptable to any style of architecture, whether it be French Provincial, Early American, Georgian, or streamlined modern. It may be used for the simplest cottage or for the most elaborate mansion, and yet, with even the most modest skill in handling, the material lends additional charm over and above the inherent charm of the design itself.

The range and variety of wall finishes that can be achieved with concrete masonry units is virtually unlimited. Various colors and surface textures may be produced at the time of manufacture, but the greatest variety unquestionably results from the free play of creative imagination in the end use of the product. It is for this reason that thousands of architects have enthusiastically adopted the material for their own, using it in ways, and to achieve effects, that were undreamed of a generation ago. The modern concrete masonry unit has at last provided a medium of construction which imposes no limitations of any sort upon the architect, and yet the range of its possibilities has been to date little more than scratched.

The illustrations shown here indicate only a few of the types of wall finishes that can be achieved with concrete masonry. They have been selected to suggest, rather than to delineate, the possibilities of the ma-



Exposed concrete units, either left natural or painted, are being rather widely used in "cost-no-object" residential work as well as in low-cost housing.

terial. Some effort has also been made to include a variety of architectural styles and to cover as wide a range of prices as possible. None of the homes pictured, however, is unique in any respect, and hundreds could readily be selected at random from almost any locality that would be at least equally representative.

Strength Strength and durability are basic characteristics of concrete in general. Most concrete masonry units marketed have a compressive strength of at least 1,000 p.s.i., and walls built of this material develop exceptionally high strengths. Tests carried out at the University of Illinois indicate that concrete masonry walls are about twice as strong as clay brick walls built with units of approximately the same strength; and in frame construction it is virtually impossible to attain strengths that are in any way comparable.

The great strength of concrete masonry structures is perhaps best shown by their remarkable resistance to wind storms and other destructive forces. The Florida hurricane of 1926, for example, is believed to have been one of the most severe storms ever experienced in this country. Wind velocities soared as high as 125 m.p.h., and in some areas rainfall amounted to as much as 15 in. during the 16 hours that the storm raged. The city of Coral Gables, then the only community in the country restricted by law to concrete construction, was in the direct path of the hurricane. Some 2,500 residences, apartments, and other buildings, all constructed of concrete masonry units, survived the great storm without a single instance of total destruction, and only slight damage. Total damage to the city was not over $1,500,000, while less fortunate communities in the same area suffered staggering losses when flimsy structures by the thousands collapsed in the path of the storm. It is scarcely to be wondered at that today concrete masonry construction predominates throughout the state.

Homes and other structures built of concrete masonry show up equally well in areas which are subject to earthquakes, and the product has won equal preference in such areas. Fortunately hurricanes and earthquakes are unknown in most sections of the United States, but the inherent strength which enables concrete masonry walls to withstand such extreme tests is desirable in any structure, regardless of its location and the service it is to perform. In the long run flimsy construction, by reason of its shorter useful life and infinitely higher maintenance cost, is far more costly.

Durability The term durability is used here in its general rather than in its technical sense. It covers collectively many of the most important characteristics of a concrete masonry home—its immunity to the wear, rot, and decay which afflict other types of construction; its ability to render good service for long periods of time without costly repairs; and its general strength and rigidity, resulting in freedom from the warping and sagging and cracking which undermine the enjoyment and ultimately the whole value of home ownership.

Just as concrete masonry buildings afford the best protection against destructive hurricanes and earthquakes, so do they provide the ultimate protection against all the destructive forces of nature. Even in the most benign climates the structures built by men are under constant assault—from driving rains, from freezing and thawing, from the intense glare of sunlight, and from the incredibly destructive attack of termites. No widely available building material resists these forces as well, or at as little cost, as concrete.

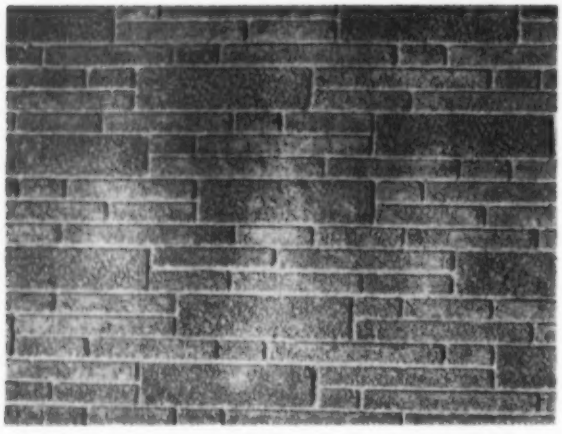
The subterranean termite deserves special mention in any discussion of durability. It has an insatiable appetite for cellulose, which is the chief constituent of wood, and it has acquired in recent years a marked taste for man-made lumber in preference to its original diet of dead timber.The cost of termite damage runs into millions of dollars every year and has led to the development of a sizable new industry.

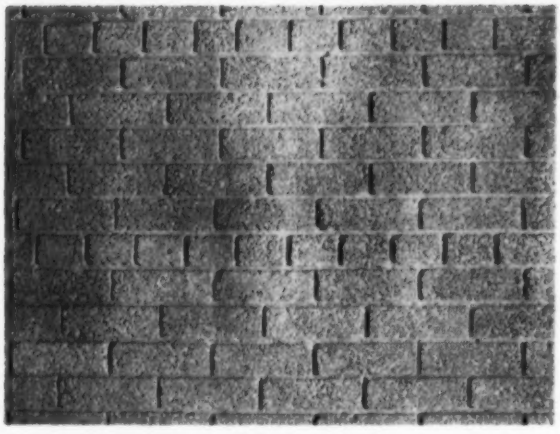
Since termites bore inside of timbers, leaving little or no surface trace of their activities, the first indication of their presence is usually the collapse of some portion of the infested structure. Termites have been reported in every one of the 48 states, and their depradations are equally prevalent in farm and urban areas. The names of thousands of exterminating firms in the classified telephone directories of cities all over the country are an accurate measure of both the extent and the seriousness of the problem.

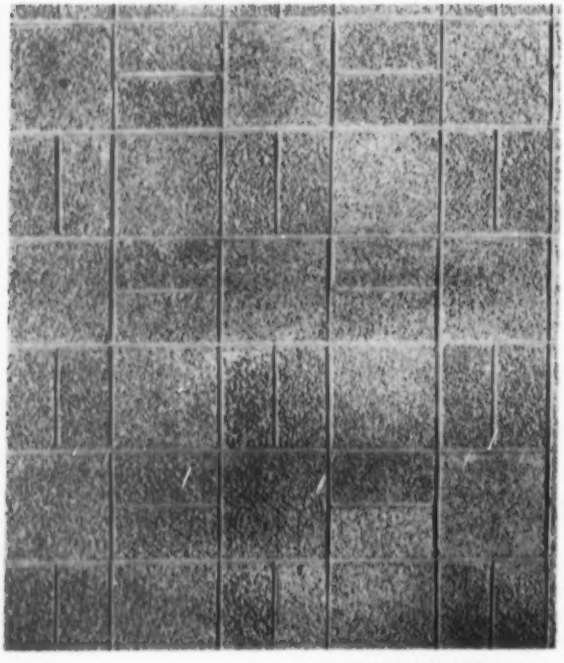
Studies in certain areas have disclosed that in severe cases up to 90 percent of all residences may be either infested by termites, or seriously threatened by their presence in adjacent wooden structures. The repair of termite-damaged structural members and the measures necessary to exterminate the pests and bar their re-entry add up to tremendous expense for homeowners. In this battle prevention is clearly the only economical defense. Complete and permanent protection against termites is assured when homes are built of concrete masonry in accordance with modern building codes, for the material affords them no nourishment and it presents an unbreachable barrier to keep them out. When floors and other structural members, as well as foundations, side walls, and partitions, are constructed of concrete masonry, all the important elements that go to make a home are completely and everlastingly termite-proof.

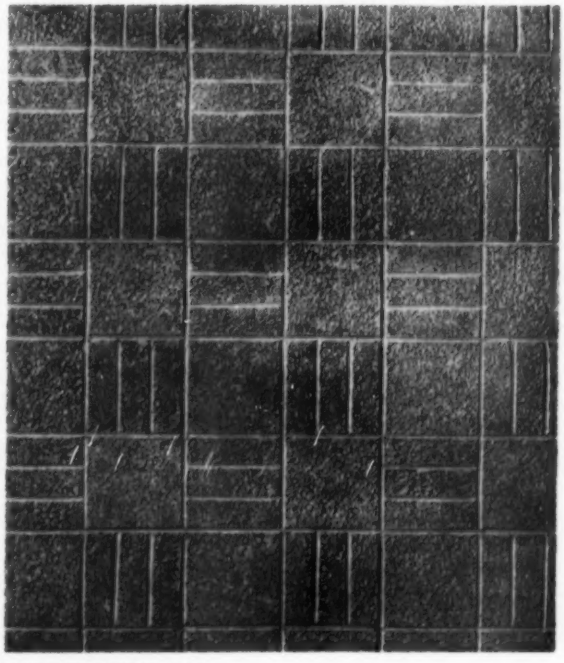
Fire Resistance It would be pointless to attempt here any detailed discussion of the loss of life and property due to

More patterns used in concrete masonry wall construction. Other appearance variations may be effected by using units with different textural characteristics, and by employing various techniques for concealing or accenting joints. Color may be incorporated in the manufacturing process or applied to the units in the completed structure.









fires in this country each year. The property loss runs into millions of dollars, and the loss of life, of course, is beyond monetary measurement.

Homes constructed of concrete masonry afford their owners the ultimate protection against destructive fires, for concrete is itself absolutely fireproof. When foundation and side walls, floors, and roofs are built of firesafe concrete masonry, the resulting structure is as fireproof as ingenuity can make it. Even a serious fire fed by combustible materials stored in the basement cannot spread into other parts of the structure, since it is surrounded by a barrier of fire-resistant masonry.

Practically all concrete masonry units manufactured in the United States are now eligible for the Inspection Service of Underwriters' Laboratories. This means that they may be classified according to the length of time, as determined by laboratory tests, that they may be expected to resist fires. For testing purposes wall panels are built of the type of masonry to be certified and are so placed in a gas-fired furnace that one face can be exposed to intense heat, while the panel is subjected to a working load of 80 p.s.i. Within 5 minutes the temperature of the exposed face reaches 1,000 deg. F., and at the end of an hour it reaches 1,700 deg. It is then increased uniformly until a temperature of 1,925 deg. is reached 3 hours after starting, unless failure occurs.

A wall is considered to have failed as a fire retardent when flame passes through it, or when the temperature of the unexposed face rises 250 deg. above room temperature. Materials are classified as fire retardants according to the time in hours that they withstand the fire endurance test; *i.e.*, a material that withstands the test for more than 3 hours, but less than 4 hours, is classified as a 3-hour retardant. Such data are used by insurance underwriters in establishing fire insurance rates.

Concrete masonry units in 8-in walls are classified as 2-, 3-, and 4-hour fire retardants, depending on average minimum face shell and internal web thicknesses and the type of aggregate used. Walls that earn such ratings show little spalling when they are withdrawn after 1 hour of fire exposure and immediately subjected to the impact and cooling effect of a fire hose stream, and they have remarkable load-carrying capacity during and after the most severe fire exposure.

For the reasons stated, a home built of concrete masonry is itself the best assurance against fire loss that money can buy. The mere knowledge that loved ones and personal possessions are secure from the ravages of fire, regardless of whether that security is ever subjected to severe test, is just one of the joys of living in a concrete masonry home. And, oddly enough, that security is not only obtainable at no increase in costs over other types of construction, but it yields a fat dividend every three years in the form of lower fire insurance rates.

Insulation Value Walls built of lightweight concrete masonry units are self-insulating to a marked degree. This is due to the cellular structure of the aggregate itself, which contains innumerable air cells. These have the same effect in slowing down heat transmission as has the dead air space between storm and regular windows.

Coeffecients of heat transmission for 8-in. lightweight concrete masonry walls, furred and plastered, compare favorably with standard wood frame construction, which is usually regarded as the basis for judging heating efficiency. With the addition of as little as ½ inch of rigid insulation the comparison definitely favors concrete masonry. A further substantial reduction can be achieved by filling the core spaces of standard 8- by 8- by 16-in. units with granular or loose-fill insulating material.

For reasons of economy as well as comfort some form of insulation is now being built into most homes. This is particularly true in the colder climates, but it is also true to a considerable extent in regions where it is important to keep heat *out* of structures rather than in. Performance standards of the Housing and Home Finance Agency limit heat losses in dwellings (in B.t.u.'s per hour) to 60 times the total number of square feet of floor area, or approximately half the loss found in the average pre-war home.

This waiting room of modern office suggests the wide range of decorative effects which uninhibited use of concrete masonry can achieve.

Arthur Stone, engineer of the Housing and Cement Products Bureau, Portland Cement Association, has shown* that the heat loss for a typical concrete masonry home, using wall and ceiling insulation, storm sash, and weather-stripping, falls well within even this exacting limitation. His computation of maximum hourly heat loss for a house with a floor area of 768 square feet, built with 8-in. cinder units, furred and plastered and insulated with ½ inch of rigid insulation, indicates a total loss of 44,516 B.t.u.'s per hour, as compared with a permissible FHA performance standard of 46,080 B.t.u.'s

Although heavyweight concrete units transmit heat more rapidly than their lightweight counterparts, their slight deficiency in this respect can be readily and economically overcome by the application of almost any of the numerous types of insulation available. For example, a wall built of 8-in. sand or limestone units, furred and plastered and insulated with ½ inch of rigid insulation, has a *U* factor of .20, or about 20 percent less than standard frame construction.

In extremely hot climates, where home air conditioning is coming to be regarded as a necessity rather than a luxury, the insulating properties of lightweight concrete masonry show equal benefits in respect to both economy and comfort. In regions where day-time temperatures soar to the 100 mark or over, the natural insulating value of light-

*Journal of the American Concrete Institute, Vol. 19. No. 9

weight units, with or without additional assistance from other materials, forms a barrier against the heat, making it possible for simple evaporative coolers to maintain comfortable temperatures inside the house. This has been an important although by no means exclusive factor in the widespread use of concrete masonry in home construction throughout the Deep South and the Southwest.

Economical Considerations Long before its many far more important advantages in the home construction field were properly utilized, concrete masonry was recognized and accepted as an inherently economical building material. With the rapid rise in building costs since World War II, the factor of economy has assumed greater importance than ever.

For a given wall area, in most sections of the country concrete masonry construction is somewhat more economical than clay tile, and considerably more economical than clay brick, although the units themselves may cost more than competitive masonry materials. The savings are due to the relatively large size of the concrete units and to their close tolerances as to size and shape, resulting in important economies in both labor and material. Masons can lay more wall area with 8- by 8- by 16-in. units than with standard brick-sized units, and the mortar requirement for a given area of wall is substantially less. There is usually an additional savings in the costs of direct application of plaster and/or stucco, since both of these materials adhere far more readily to concrete than to other masonry materials.

Important as these savings in direct cost of walls may be, they are minor in comparison with the economies which can be achieved indirectly through the use of concrete masonry units. For when properly used, concrete masonry can provide in one material walls which have great structural strength, excellent outdoor weathering surfaces, insulating and acoustical values, and indoor decorative features, without the use of any of the costly, critical materials required in other methods of building. This factor alone makes it one of the most exciting and provocative of all building materials.

If he chooses to take full advantage of the possibilities of the material with which he is working, the designer or builder of a concrete masonry home has almost unlimited freedom to effect important economies without any sacrifice in quality, comfort, or general performance of the finished structure. Pleasing architectural effects can be achieved in many of the rooms of a modern home by simply tooling the joints of wall and partition units, and decorating the surfaces directly. The use of special concrete units with curved ends around window and door openings eliminates labor and material costs for trimming with milled lumber. Baseboards can also be eliminated at the junction of wall and floor, since quarter-round or base shoe provides sufficient trim for this type of construction.

Insulation can be built into a concrete masonry home at little cost by simply filling the cells of the units with any of several excellent loose-fill insulating materials. Such materials are poured into the cells while the walls are being constructed. This practice is desirable regardless of other details of construction, but it should be regarded as mandatory if the interior walls are not furred and plastered, or if plaster is applied directly to the interior concrete surface, as is often done. The slight additional cost of building well-insulated walls is more than repaid by savings on the size of the heating plant required and on operating costs.

Concrete masonry lends itself readily to important economies in foundations and footing structures, as well as in the construction of fire-safe, trouble-proof floors. The framing of roof structures and the trimming of the eaves can also be accomplished with the minimum amount of labor and materials.

When a number of housing units are built at the same time, as in speculative projects, concrete masonry affords the maximum opportunity to avoid the sameness and monotony that often characterize such developments. The versatility of the product itself, the immense range of types and sizes of units available, and the wide variety of surface treatments and patterns that can be employed, make it possible to utilize identical or similar floor plans without any apparent repetition, and without increasing costs. Additional individuality can be achieved by occasionally working out certain architectural details with other materials, such as wood, clay brick, or glass block, a practice to which concrete masonry lends itself far more readily than other structural materials.

Uninhibited use of color offers the architect and builder another means of achieving infinite variety in concrete masonry home developments. Attractive, durable portland cement paints are now available in every imaginable color, and they can be applied to exposed concrete masonry walls at a fraction of the cost re-

Since the war more and more architects have discovered that concrete masonry is a "natural" in residential work. Countless thousands of attractive, low-cost homes attest the soundness of this trend.

Only the designer's imagination limits the infinite variety of effects that can be produced with concrete masonry. This modern store front utilizes units of different sizes to produce shadow lines.

quired to paint other materials.

Specific comparison of building costs is far beyond the scope of this discussion. Brief reference, however, to the experience of a prominent builder in the Pacific Northwest may serve the purpose of indicating what *can* be accomplished when the cost-saving potentialities of concrete masonry are fully utilized. In building more than 2,000 homes of concrete masonry this builder found that his costs per house ran from $1,000 to $1,500 less than for comparable units made of frame construction, stucco, or brick. In commercial structures, such as retail stores and warehouses, the same builder reports that his cost per square foot has been very substantially less with concrete masonry than with any other material.

It should be pointed out that the present wide use of concrete masonry is to only a limited extent a result of economic factors. The product has won acceptance primarily on the basis of performance—of filling a basic need for a building material that is attractive, strong, durable, and fireproof. This is borne out by the fact that it is being used in ever increasing volume for homes in the upper price brackets, for which the best materials are selected without regard to cost. Whether the building budget is $7,500 or $75,000, the qualitative superiority of concrete masonry gives it a unique position among construction materials.

Deaths of J. B. Hunt and L. Roper A Loss to Concrete Pipe Industry

Two members of the concrete pipe industry passed away recently. They were Jesse Baker Hunt, Sr., sales manager of the Carolina Concrete Pipe Company of Charlotte and Lilesville, N. C., and also president of J. B. Hunt & Sons, Inc., Raleigh, and Leroy Roper, manager of the Zeidler Concrete Pipe Company of Joplin, Mo.

Mr. Hunt, who died at 64, was born in Goldsboro, N. C., and educated at LaSalle University of New York. He was very active in civic affairs in his home town of Raleigh, and his death is a great loss to the industry.

Mr. Roper, only 51 at his death, was born near Carthage, Mo. In his early years, he followed the construction industry, later working with the Missouri State Highway Department. In 1936 he started with Zeidler as plant foreman, later becoming manager.

For the third consecutive year, construction topped agriculture as the nation's leading industry. According to U.S. Commerce Department statisticians, one out of every $8 spent in 1952 was for construction material or service.

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Variants of the Word Concrete Show Vast Expenditure of Inventive Zeal

UNDER the scholarly heading "Concrete's Etymological Offspring" the *Journal* of the American Concrete Institute recently published a list of 122 words derived from the word concrete. In his letter of submittal the reader who had prepared the list pointed out that the possibilities seem inexhaustible, and surely no one who is familiar with the field will dispute the accuracy of this observation.

The list intrigued us for several reasons, not the least of which was the fact that at least three of the entries had their origin in our own "Botched Batches" department. We cannot help but admire the cool, eye-on-the-ball detachment which enabled the compiler to list tongue-in-cheek creations right along with serious inventions.

On the chance that some of our readers may have missed the list in the March, 1953, *Journal,* we have requested and obtained permission from A.C.I. to reprint it here. When they are known, the sources of the words are printed at the right.

Word	*Where used*
Advicrete	Cement and concrete Assn., London (cable address)
Aerocrete	L. Sonneborn Sons, Belleville, N. J. (air-entraining admixture)
Aerocrete	Colorado Scientific Society, *Proc.* V. 15, 1951, p. 308 (lightweight aggregate)
Aircrete	Carter-Waters Co., Kansas City, Mo. *Concrete,* Feb., 1951, p. 37
Air-Crete	The Sullivan Co., Memphis, Tenn.
Bamcrete	PIT AND QUARRY, Dec., 1952, p. 173
Blocrete	Zonolite Co., Chicago, Ill.; *Engineering News-Record,* Feb. 26, 1953, p. 78
Boocrete	PIT AND QUARRY, Dec., 1952, p. 173
Brikcrete	Brikcrete Associates, Grand Rapids, Mich.
Calcrete	*Webster's New International Dictionary*
Cellcrete	Celltite Co., Omaha, Nebr.
Celocrete	Celotex Co.; *Concrete,* June, 1951
Cobcrete	PIT AND QUARRY, Sept., 1952, p. 213
Colcrete	Colcrete Ltd., Rochester, England; *Highway Research Abstracts,* No. 20, 1950, p. 13
Colocrete	
Colorcrete	Colorcrete Industries, Holland, Mich.
Concore	Drill, Howard Co., Los Angeles, Calif.
Concream	Sealocrete Products Ltd.; *Concrete & Constructional Engineering,* Aug., 1951.
Con-Cre-Co	George D. Weatherill & Co., Philadelphia, Pa.
Concrelith	*Road Abstracts,* May, 1952, p. 74
Concretar	Neville Co., Pittsburgh, Pa.
Concretcote	Patek Bros., Milwaukee, Wis.
Concretdense	Flexrock Co., Philadelphia, Pa.
Concreter	*Webster's New International Dictionary*
Concreternal	Southwestern Chemical Co., Houston, Texas
Concretoil	Neville Co., Pittsburgh, Pa.
Concretone	Upco Co., Cleveland, Ohio
Concretor	Boulder Equipment Ltd.; *Concrete & Constructional Engineering,* Jan., 1953, p. 6
Concretor-Prometo	*Betong,* V. 36, Nov. 3, 1951, p. 151
Concrewaltum	Vita Var Corp., Newark, N. J.
Cone-Crete	Cone-Crete Products, Elkhart, Ind. PIT AND QUARRY, Jan., 1953, p. 282
Con-O-Lite	Con-O-Lite Vault Co., Wilson, N. C.
Conotex	Conotex Co., Abilene, Texas; PIT AND QUARRY, Oct., 1952, p. 154
Corncrete	PIT AND QUARRY, Sept., 1952, p. 213
Crete-A-Lith	Crete-A-Lith Co., Ingram, La.
Cretar	Creco, Long Island City, N. Y.
Cretechanl	Martin Fireproofing Corp., Buffalo, N. Y.
Crete-Dri-Seal	*Concrete,* Apr., 1952, p. 26
Crete-Fix	A. C. Horn Co., Long Island City, New York
Cretemix	Tremco Co., Cleveland, Ohio
Crete-O-Lux	Heywards Ltd., *Concrete & Constructional Engineering,* May, 1951
Creteplank	Martin Fireproofing Corp.; Buffalo, N. Y.
Cretetop	Maintenance Engineering Co., Philadelphia, Pa.
Cretex	Cretex Co., Inc., Elk River, Minn.; *Rock Products,* Feb., 1952, p. 169
Cutcrete	Dart Manufacturing & Sales Co., Denver, Colo.
Diacrete	Colorado Scientific Society, *Proc.* V. 15, No. 8, 1951, Table 1, p. 308
Discrete AC	A.C.I. *Journal,* Nov., 1950, *Proc.* V. 47, p. 259
Dry Mix Crete	Dry Mix Crete and Supply Co., Grand Rapids, Mich.; *Rock Products,* Jan., 1953
Dumpcrete	A.C.I. *Journal,* "News Letter," Nov., 1950, p. 19
Duracrete	Duracrete Block Co., Manchester, N. H.; PIT AND QUARRY, Sept., 1952, p. 217
Dura-Crete	Dura-Crete Products Co., Muncie, Ind.; *Engineering News-Record,* Jan. 15, 1953, p. 156
Dycrete	
Eternacrete	Eternacrete Products Co., Kansas City, Mo.; *Rock Products,* July, 1952, p. 117
Ferroconcrete	Ferroconcrete Ltd., Lancashire, England; *Concrete & Constructional Engineering,* Jan., 1953
Ferroconcretor	*Webster's New International Dictionary*
Ferrocrete	*Engineering* (London), Sept. 14, 1951, p. 345
Foam-Crete	Foam-Crete Inc., Scranton, Pa.; *Rock Products,* Jan., 1953, p. 82
Glascrete	J. A. King & Co., Ltd.; *Concrete & Constructional Engineering,* Aug., 1951
Groutcrete	Colcrete Ltd., Rochester, England (cable address)
Heatcrete	Lee-Don Inc., Harmarville, Pa.; PIT AND QUARRY, Oct., 1952, p. 162

Hobbycrete	
Hydrocrete	PIT AND QUARRY, Jan., 1951, p. 225
Hydrocreter	Imperial Construction Equipment Co.; PIT AND QUARRY, Dec., 1952, p. 174
Icecrete	*Military Engineer*, May-June, 1950, V. 42, pp. 176-178
Jetcrete	
Joltcrete	Stearns Manufacturing Co.
Kem-Krete	Sherwin - Williams; *Engineering News-Record*, Jan. 15, 1953, p. 156
Koncrete	Tilden Mfg. Co., San Clemente, Calif.
Krete-Koter	Hurst-Rosche Co.; *Engineering News-Record*, Jan. 15, 1953, p. 156
Lavacrete	*Rock Products*, Nov., 1951, p. 128
Lenscrete	Lenscrete Ltd., London; *Concrete & Constructional Engineering*, Jan., 1953
Macrete	The MacLeod Co., Cincinnati, Ohio; A.C.I. Journal, "News Letter," Feb., 1953, p. 15
Marblecrete	PIT AND QUARRY, Sept., 1951, p. 176
Mascrete	
Mearlcrete	Mearlfoam Co., Eastport, Me.
Moracrete	Moracrete Products Co., Dublin, Ireland; *Concrete Pipe News*, July, 1952
Nailcrete	*Concrete & Constructional Engineering*, Jan., 1952
Oncrete	Lowebco Inc., Chicago, Ill.
Panelcrete	National Panelcrete, Inc.; *Engineering News-Record*, Dec. 4, 1952, p. 122
Paracrete	Concrete Pipe and Products Co., Richmond, Va.
Patchcrete	
Penncrete	Penn-Crete Products Co., Philadelphia, Pa.
Permacrete	Permacrete Products Co., Greenville, Ohio
Plasticrete	The Plasticrete Corp., Hamden, Conn.
Plastocrete	Sika Chemical Corp., Passaic, N. J.
Porete	Porete Mfg. Co.; *Fortune*, July, 1952, p. 30
Pumicrete	
Pumpcret	Concrete Pump Co., Ltd., London, England
Pumpcrete	Chain Belt Co., Milwaukee, Wis.
Pykrete	American Geophysical Union, *Transactions* V. 31, Apr., 1950, p. 278
Redi-Mix-Crete	Dry Mix Crete & Supply Co., Grand Rapids, Mich.

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Refracrete Resto-Crete	A.C.I. *Journal*, "News Letter," Sept., 1951, p. 22
Sakcrete Sakrete	Sakrete Inc., Cincinnati, Ohio
Screwcrete	
Sealocrete	Sealocrete Products Ltd., *Concrete & Constructional Engineering*, Aug., 1951
Semiconcrete	*Webster's New International Dictionary*
Semicrete	*Concrete & Constructional Engineering*, May, 1951
Shadecrete Shockcrete	Shockcrete Products Co., Hoddeston, Hertsford, England; *Concrete & Construc-* 1950, *Proc.* V. 47. Feb., 1952
Shotcrete	A.C.I. *Journal*, Nov., 1950, *Proc.* V. 47.
Sikacrete	Sika Chemical Corp., Passaic, N. J.
Snowcrete	*Military Engineer*, May-June, 1950, V. 42, pp. 176-178
Soo-Crete	PIT AND QUARRY, Sept., 1951, p. 187
Sparkle-Crete	Sparkle-Crete Co., Chicago, Ill.
Spraycrete	Western Waterproofing Co., Chicago, Ill.
Spun-Crete	American Concrete Corp.; *Lone Star Cement News*, Aug., 1952
Stonecrete Strata-Crete	Great Lakes Carbon Corp.; *Petroleum Technology*, Jan., 1951
Strestcrete	Basalt Rock Co., Inc., Napa, Calif.
Supercrete	St. Boniface, Manitoba; *Concrete*, July 1952, p. 37
Tamcrete Telecrete	Telecrete Liquid Concrete Tipper; *Civil Engineering & Public Works Review*, July, 1952, p. 525
Texcrete	Texcrete Co., Fort Worth, Texas, *Concrete*, Dec., 1951
Tile-Crete	Tile-Crete Products Co., Tyler, Texas, *Rock Products*, Dec., 1952, p. 203
Transcrete	Construction Machinery Co., *Concrete*, Mar., 1952, p. 35
Tru-Crete	PIT AND QUARRY, June, 1951, p. 137
Worthcrete	Worthcrete Co., Fort Worth, Texas.; *Rock Products*, Feb., 1952, p. 159
Zilicrete	Truscon Laboratories; *Engineering News-Record*, Apr. 3, 1952, p. 108

SEPTEMBER, 1953

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Expanded Shale Institute Publishes News Bulletin

Volume I, No. 1 of Expanded Shale *Concrete Facts* has just made its appearance as the official publication of the Expanded Shale Institute. Page 1 of the new journal carries the purposes and functions of the institute and a picture of Frank G. Erskine, its managing director.

Other pages are devoted to the many and varied uses of expanded shale, including large buildings recently erected, bridge and ship construction, and other structures. Also included are a chart comparing crushing strengths of aggregate to compressive strengths of concrete, another on architectural acoustics, and sketches of wall sections showing the comparative insulation value of expanded shale units and those of other types of walls. Expanded shale, weighing only a fraction of other materials, has one of the best insulation values.

Members of the institute's executive committee are as follows: S. Carl Smithwick, Smithwick Concrete Products, Portland, Oreg., president; Warren W. Allen, Hydraulic-Press Brick Co., St. Louis, Mo., first vice-president; Alex R. McVoy, Texas Industries, Dallas, Tex., second vice-president; George Bickel, The Featherlite Corp., Dallas, Tex., secretary; and A. R. Waters, Carter-Waters Corp., Kansas City, Mo., treasurer.

Trade Literature

Powered Wheelbarrow cuts costs, increases production and saves manpower, Prime-Mover Co. says in this folder on the Bell Prime-Mover, capable of hauling up to 1500 lbs. on its platform or in its 10 cu. ft. bucket. The unit goes up steep ramps, is rubber-tired, runs all day on a 4-gal. tank of gas and has foot-controlled dumping.

Our Identification No. 101

Modern Fastening Handbook, published by Ramset Division of Olin Industries, features 32-pages of advice and illustrations, photographs and cutaway sketches to show how power-actuated tools and fasteners are employed in building construction. First used during World War II, this fastening system has become widely popular.

Our Identification No. 102

Bin Stuck Lately? Cleveland Vibrator Co. offers a six-page folder describing the application of its air vibrators in the concrete and construction industries. The folder contains information on their use with bins and hoppers, trucks and railroad cars, and in the production of risers, concrete block, lintels, etc.

Our Identification No. 103

Restful Paint Colors for plant interiors and machinery add to worker happiness and increase safety. Rust-Oleum Corp. describes its special finishes for machinery, walls and ceilings in this bulletin.

Our Identification No. 104

Air and Hydraulic Power replaces manual operation for simplicity and economy, this booklet shows, describing the entire Rivett Lathe & Grinder line of air and hydraulic valves and cylinders.

Our Identification No. 105

Tilting Mixer with an end discharge, the Blue Brute 3½-S, is described in a specification sheet from the Worthington Corp. Features include 48-in. loading height, finger-tip control drum lock, rigid box-type coil spring mounted axle and a mixing drum that allows a complete revolution.

Our Identification No. 106

Concrete "Merchandise" available through the 26-plant network of the Universal Concrete Pipe Co. is shown in this folder of standard and custom-made products: plain and reinforced sewer pipe, culverts, cattle passes, site cast pipe, large diameter or long length pipe, corrosive carrier pipe, pipeline river weights, concrete cribbing and "packaged bridges."

Our Identification No. 107

Visible Mixing is a feature of the Hi-Lo concrete truck mixers, this broadside from Concrete Transport Mixing Co. points out. The Hi-Lo has a low charging height, uses a power take-off instead of an extra engine, and has lightweight durable construction.

Our Identification No. 108

Cost Cutting in Materials Handling is the subject of a 28-page textbook available from Yale Materials Handling Division. Latest methods for analyzing materials handling operations are given. The book was prepared with the help of Dr. V. S. Karabasz, associate professor of industrial management at Wharton School, University of Pennsylvania.

Our Identification No. 109

Why the Finest Brick Walls Leak is discussed in this 8-page bulletin from A. C. Horn, which offers as the answer a new chemical, Hydratite Plus. This changes the surface tension of the water in the mortar to make the water wetter and bind it to the particles of sand, cement and lime.

Our Identification No. 110

Vibrators for several specialized applications in the concrete industry are included in this Branford Co. catalog. Besides conventional bin, hopper and block machine vibrators, the booklet shows mold vibrators for concrete pipe, vaults, slabs and other special forms.

Our Identification No. 111

NEXT IN IMPORTANCE TO YOUR BLOCK MACHINE

Assuming that your mixer and block machine are working smoothly to your entire satisfaction, a logical question is what you can do next to increase your volume of sales.

One sound step in this direction will be to make concrete lintels and sills. Some producers have made them by slow, hand methods in more or less crude forms. But today, more and more concrete producers are making them better, faster, at less cost on the

KENT LINTELATOR

This is a highly efficient machine, the only one available for the purpose, which combines vibration and pressure to make superior products that have found ready acceptance wherever introduced.

That's logical too. Why should a builder use steel lintels, encounter delays and engage steel workers when for less cost he can get entirely satisfactory concrete lintels which his own masons can install.

There's something timely for you to consider. And if there is any question as to the efficiency of your mixing and block making equipment, the logical thing to do is investigate KENT Continuous Mixers and the KENT Blockmaker also.

Write today!

•

The **KENT MACHINE COMPANY**

CUYAHOGA FALLS, OHIO

Manufacturers of

CONCRETE PRODUCTS MACHINERY SINCE 1925

The Fork Truck of the Future, the X-70, is described and illustrated in the current edition of Clark Equipment Co.'s house organ "Materials Handling News." Your opinions and suggestions are invited in a ballot included in the issue, copies of which Clark will gladly send you.

Our Identification No. 112

Gas-O-Matic Fork Lift Trucks made by Baker-Raulang feature a new form of electric transmission which uses no clutch, transmission, controller or resistor. Fuel savings and maintenance reductions run to 40 percent and life expectancy is 50 percent greater, this bulletin claims.

Our Identification No. 113

Permalite. This aggregate for concrete and plaster, produced from perlite ore, is lightweight, insulating and fireproof. AIA data file sheets prepared by Great Lakes Carbon Corp. give you all details, instructions for use, architectural specifications, etc.

Our Identification No. 114

Tractor Loaders are handy around concrete plants this brochure on Sheppard diesel tractors equipped with Baker-Lull Shoveloaders shows. Listed are features of the equipment, available attachments, various applications and the special economy features of diesel operation.

Our Identification No. 115

HUNDREDS OF INSTALLATIONS PROVE THE WORTH OF THE *National Car Shaker*

IN READY-MIX, STONE, SAND AND GRAVEL PLANTS

National Car Shakers have been PROVED ON THE JOB. Hundreds of National Car Shakers in use today have already paid for themselves over and over again through big unloading savings.

One man can, under normal conditions, complete the entire unloading operation without going into the car. Sand, gravel, stone, cinders, aggregates, coal, coke and other bulk materials can be safely unloaded in as little as 6 minutes. Can YOU afford to be without a National Car Shaker?

"WE HAVE 4 NATIONAL CAR SHAKERS"

"I am taking this means of expressing our pleasure in the efficiency of your car shaker. We have four National Car Shakers and all are being used to unload sand from hopper cars at our various yards.

"Prior to use of your Car Shaker the sand was pushed down by hand. The amount we were able to unload was below that required in our operations."

"We now unload even wet sand with sufficient speed to keep our plants running. The shakers have been comparatively trouble-free."

(signed) ROBERT J. HUMMEL, Vice-President
CONSUMERS COMPANY, Chicago, Illinois

WRITE TODAY for information on how the National Car Shaker can save money for you.

PATENTED

National Conveyor & Supply Company

348 N. HARDING AVENUE CHICAGO 24, ILLINOIS

Stearate Properties Chart. The complete line of stearates made by Metasap Chemical Co. is shown on this handy new wall chart that lists properties and applications.

Our Identification No. 116

A Drivers Eye View of fork truck operation is featured in a new 36-page book offered by Buda Co. "Any man who can drive an automobile can become a skilled Buda lift truck operator in no time at all" the book says, using photographs to show the many features of the firm's line.

Our Identification No. 117

Plate Magnets of the Alnico-permanent non-electric variety are shown in this new 6-page Magnetic Engineering & Mfg. Co. catalog. The uses and advantages of these magnets for tramp metal removal are discussed.

Our Identification No. 118

Unloading Block at the Job Site, a time-consuming, back-breaking job, has been modernized into a simple task that takes only a few minutes by the Anthony block body for trucks. Designed to carry 6 or 8 cubes loaded by fork truck, the Anthony body features a "floating hinge" arrangement that allows the cubed block to slide off onto the ground, making a neat pile, without damage. There is no undue strain on the truck, and the operation is "one man".

Our Identification No. 119

A Masonry Saw, the Eveready BrikSaw, is featured in a bulletin issued by the Eveready BrikSaw Co. The unit cuts wet or dry, and features a 21-second removal of the cutting head for two-piece transportation. A 1½-hp dustproof motor provides power.

Our Identification No. 120

Testing Apparatus for cement, concrete and soils are listed in this 20-page bulletin of Precision Scientific Co. The apparatus conforms with the latest approved standards of such groups as ASTM, AASHO, etc.

Our Identification No. 121

The Vibrolator is a vibration device for bins, hoppers, chutes, etc. It has one moving part, a steel ball that is propelled by compressed air to move at high speed around a circular race, generating large numbers of powerful all-directional vibrations, Martin Engr. Co. says. Sizes and types are available for all sorts of duty, this 64-page catalog indicates.

Our Identification No. 122

Athey Model 3 Force-Feed Loader. Form No. A-337. This bulletin has a complete description, specifications, and photos of the loader in its eight pages. Attachments are shown by drawings while the many uses of the loader are brought out by the application photos. Athey Products Corporation.

Our Identification No. 123

NEW MACHINERY and SUPPLIES

• Redwood Window Surround

A new redwood surround for Best-Vent aluminum windows has been announced by *Per-Fit Products Corporation*. Designed especially for dry-wall or gypsum lath construction, it provides wood return, interior and exterior trim, the sill and stool in one complete package, shipped knocked down. Even inexperienced workers can caulk and assemble it on the job in less than three minutes, Per-Fit says.

Our Identification No. 124

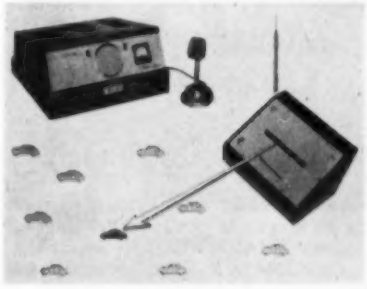
• New 2-Ton Fork Truck

A two-ton capacity fork lift truck has been unveiled as the first entry of the Truck-Man Division of the *Knickerbocker Company* into the high-lift field. Provided with 40 brake hp. by a 4-cylinder Ford engine, it has pneumatic tires for traction and footing even on soft ground. A six-foot turning radius, oversized clutch, heavy-duty transmission and axles, and ease of maintenance are other features.

Our Identification No. 125

• 2-Way Radio Developments

A single tone selective signaling system is among recent developments announced by *Motorola* for users of two-way radio as well as for other control purposes. The system allows any operator to initiate operation at one or more remote points through an intervening communication medium.



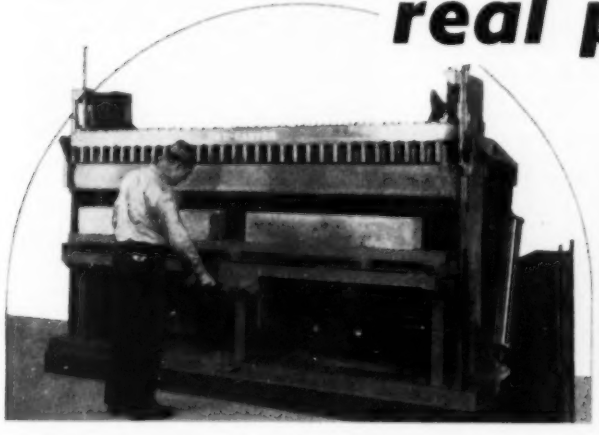
Motorola has also added several mobile models to its diversified line of 25-54 mc. FM 2-way radio equipment. These new 30 and 60-watt models feature innovations such as universal 6-12 VDC operation, dual interrupter vibrator power supply and drastically reduced power strain.

Our Identification No. 126

W. A. Kratzert has joined the Universal Concrete Pipe Company's staff as Florida engineer representative, serving the network of Universal plants and offices in Florida.

real profits from hard to make units

Such as LINTELS, HIGHWAY GUARD RAILS, PARKING LOT MARKERS AND SLABS



- PreCaster extra heavy . . . heavy steel stripper head frame consisting of two heavy 2" x 3" cold rolled bars
- Makes units with 4" variations . . . 4", 8", 12", 16" up to 10' long . . . any lintel 4" x 8" or 8" x 8" up to 10' long . . . for example
- Mould box made to fit any width pallet . . . quick change
- Superior electrical vibration from two V-200 Syntron units
- Handles any aggregate
- One man operation
- Industry-proved . . . pilot machine used 2½ years and going strong!
- Overall height 7'6" . . . overall length 11'6" . . . overall depth 4'0" . . . shipping weight 4620 lbs.

• Enterprising concrete product manufacturers will welcome the opportunity to turn these "hand-operation" products to a profitable plus volume on a production basis. The new PreCaster with low initial investment, low maintenance and operating cost *can make any shape that will strip through a straight box.*

• Now you can book volume orders for any of these precast concrete units . . . hard to make by hand methods. Cut the costs by PreCaster's fast production and build handsome profits. Dense units from electrical vibration under pressure. Texture to match blocks in same building. Better service to your customers pays dividends.

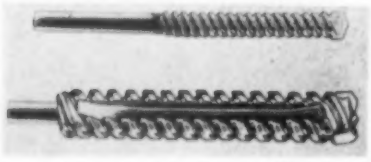
Write for data sheet and price list

PreCaster Inc.

5217 Beech Street · Cincinnati 17, Ohio

• New Masonry Drill

A "triple spiral" features a new rotary concrete and masonry drill to be revealed by the *Jet Drill Company* at the forthcoming National Hardware Show. The spiral provides triple dust exits in drills from 3/16 to ½-in. and in full slot sizes



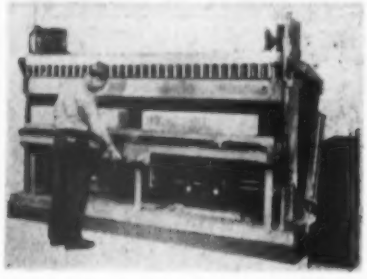
from ⅝ to 2-in., to reduce binding, stalling or heating of the specially designed tungsten carbide cutters, Jet says. The firm is guided by F. Halsey Denman, one-time sales manager for the Roddick Tool Company.

Our Identification No. 127

• Precasts Varied Units

Several concrete masonry units, hard to make economically and efficiently despite the good market for them, can now be manufactured on a precasting machine, a Cincinnati firm announces. Called the *PreCaster*, a pilot model of the machine has been in use 2½ years at the Reading Concrete Products plant in Reading, Ohio.

Lintels, highway guard rail posts, parking lot markers, joists, channel roof and floor slabs, and the like are possible with



the one-man operated PreCaster, which is said to produce dense, electrically-vibrated units from any aggregate in any shape that will strip through a straight box, 4x8-in. or 8x8-in. up to 10-ft. long. The same density and texture and the same method of rack curing as regular block is assured by the manufacturer. The PreCaster weighs 4,620 lbs. skidded for shipment, and features extra heavy construction throughout.

Our Identification No. 128

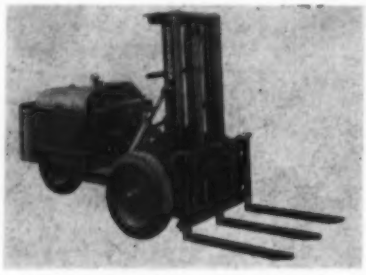
• Rubber Mixer Blades

A headache in the operation of mechanical plaster and mortar mixers has been eliminated by rubber scraper blades it has recently developed, the *Muller Machinery Co.* reports. Patents are pending on these rubber blades which will bypass the small pebbles that sometimes get caught between steel blades and drum wall. The rubber blades also keep the inside surface of the drum polished for easy cleaning, Muller says. They are available at slight extra cost as optional equipment on newer model Mullers.

Our Identification No. 129

• More Compact Lift Truck

Designed for outdoor and indoor use where compactness is needed, two new model *Erickson* lift trucks, 4,000 and 6,000-lb. capacities, have been announced. Large pneumatics on all wheels, a 12-in. center underclearance, excellent traction on rough or soft ground, and shorter turning radius are among the features. A



ballast box permits varying the balance weight for each job. The trucks have four forward and four reverse speeds, up to 25 mph., and a variety of attachments.

Our Identification No. 130

• New Water Repellent

Invisible when dry and capable of being applied at temperatures as low as zero, a new Hayproc Silicone Water Repellent has been announced by *Haynes Products Company*. This five percent solution of silicone resins in aromatic mineral spirits makes masonry water resistant and reduces the tendency to staining while allowing the walls to continue breathing, Haynes says.

Our Identification No. 131

• Drills Reinforced Concrete

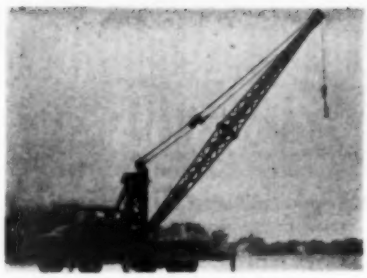
Twenty holes were drilled at a 45-deg. angle through 18-in. of reinforced concrete, cutting several steel rods, by a Cin-

cinnati firm recently, using the rotary Koncrete Kore Drill made by the *Tilden Tool Manufacturing Company*. Set on an inclined carriage, the one-hp. Tilden drilled 2½-in. holes, using water as a coolant and flush for its tungsten carbide cutters. Tilden drills are made in sizes from 3/16-in. to 8-in. in diameter with interchangeable shanks for any depth hole.

Our Identification No. 132

• Mobile Truck-Crane

Built to install on trucks 2½ tons or larger, a new crane introduced by the *Pitman Manufacturing Company* has a capacity of four tons on a 25-ft. boom, with additional boom lengths up to 59 feet. The unit permits the truck to be used to haul a trailer, when a fifth-wheel is installed.

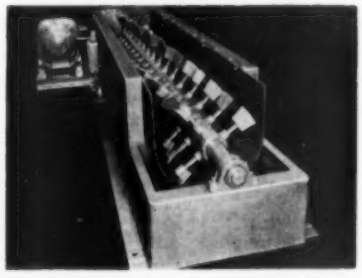


A loadline winch that can be operated either power-up or power-down on free-spooling gives the operator precision control. A topping winch raises and lowers the boom, and a double-acting hydraulic cylinder swings it in a 180-deg. arc. Controls are outside the truck cab, beside the crane's main A-frame. Quick set-up features the additional boom lengths.

Our Identification No. 133

• Continuous Mixer

As much as 30 yards of dry or semi-dry materials can be mixed per hour in the continuous mixer, model 1530 offered by *Anthony Engineering Company*. Weighing about 6,000 lb., the mixer has a 12-ft. by 27-in. trough of ¼-in. rolled steel plate, bolted for easy removal, and a 4½-in. cold rolled steel shaft, which does



48 rotations per minute. The blades are cast malleable iron, hub type, with fully adjustable cast tips of wear resistant Ni-Hard or equal arranged in spiral pattern for general steadiness of load characteristics. Safety guard, drives, motor, controls, liquid piping and valves are included or are optional. The installation of the unit is engineered according to the physical layout of the plant.

Our Identification No. 134

• Cement Transfer Screw

A portable, trailer-type inclined screw conveyor for transferring cement from a mill truck or railroad car to Wood cement tankers or similar transports has been in-

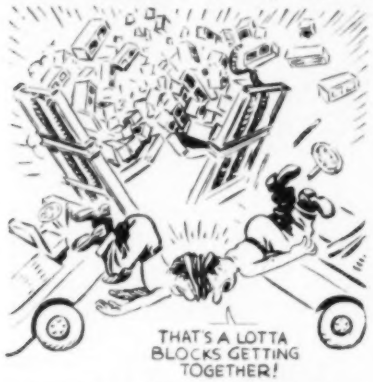
troduced by *Wood Manufacturing Company*. The "Bazooka" is powered by a gasoline engine and mounted on rubber tires.

Our Identification No. 135

Botched Batches

Ride 'Em Cowboy

A RECENT issue of *Modern Materials Handling* offers some sober advice on how to set up and run a "fork truck rodeo." In case our eager readers can't locate a copy of this incitement to mayhem, we



suggest they visit a busy block plant some day when the curing rooms are being unloaded. It's our own personal opinion that whenever two fork trucks operate simultaneously in the same general area, a rodeo-like effect is going to be achieved regardless of the intent of the participants.

Explains Everything

VIA a recent issue of the Lawrence *Dragon* we have just come into possession of a really plausible explanation of the cement shortage. The Farnsworth Museum in Rockland, Maine, had been holding an exhibit of products made by local industries, and one display showed the various stages by which limestone, clay, and other raw materials are transformed into portland cement. In attempting to explain the process to a group of students, a teacher paused momentarily when she came to a sample of clinker, then went on jauntily, "Oh, yes, clinker. That's waste material, I think. They throw it away."

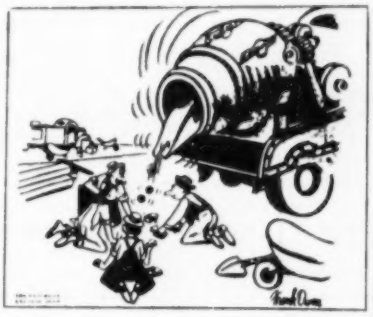
So There!

SOMEBODY slipped the block industry a Mickey Finn with that libelous story about a new escape-proof jail in Algonac, Mich., that lost its first prisoner when the guy kicked loose the concrete units in one of the walls and sauntered away. Bet he couldn't have managed it if he'd been barefooted!

You're Faded!

MR. L. V. PLUGRADT, office manager of the Klinker Sand & Gravel Co., Seattle, Wash., has written us to point out a variation on the use of transit concrete mixers which we had somehow overlooked. His company has loaned truck mixers out to local organizations on several occasions for the mixing of ticket stubs. In one drawing, he reports, there were 800,000 ticket stubs in the barrel of the mixer. We presume, however, that the drawing was orthodox in other respects; *i.e.*, that only 799,999 ticket holders were dissatisfied with the outcome.

A related possibility is suggested in the accompanying cartoon, which is reprinted here by permission of the editors of *The Saturday Evening Post*. Both notions, we believe,



stem directly from man's inherent lack of faith in man, which in turn has given birth to the widespread belief that machines are honest, impartial, and incorruptible. Just off hand we've no idea how one would go about corrupting a concrete mixer, but we'll lay odds it can be done.

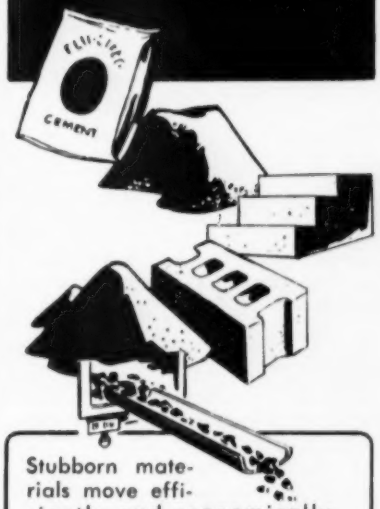
Biscrete

"GOOD Concrete," says a headline in the San Francisco *Chronicle*, "Is As Easy To Make As A Bride's Biscuits". That may well be, but there are several other points of resemblance which would have occurred to us first.

Perish the Thought

SOME months ago we wrote an article for our *Concrete Manufacturer* presenting some of the behind-the-scenes facts about the production of concrete septic tanks. We gave it the following head: "Septic Tank Business Involves Far More Than Meets the Eye." In the first flush of creation it struck us as a pretty fair head, but when we noticed the article in print some time later we found an altogether new connotation. Either way you read it, anyhow, it's still true, we hope.

BIN STUCK LATELY?



Stubborn materials move efficiently and economically through your bins, hoppers, chutes, screens and other material handling devices with the use of a CLEVELAND air vibrator.

Standard metallic impact and air-cushioned, quiet types are available in a wide range of sizes. Engineering recommendations from us, at no charge, will assure you of the right type and size for your application.

Write us today for more data on the subject.

THE CLEVELAND VIBRATOR COMPANY

2710 Clinton Ave. • Cleveland 13, Ohio

Trade Notes

ELMER H. SHAFER has been named manager of the steel warehouse division of Builders Structural Steel Corp., Cleveland, and ROBERT J. KING, has been named assistant manager. Shafer, who will direct sales, has been with Ryerson as Cleveland sales manager for strip and sheet.

E. N. Gustafson, who was for many years a part owner of the Bayou Concrete Pipe Company of Houston, Tex., has disposed of his interest in that firm and has opened an office at 4025 Duval Street in Houston, which will be headquarters for his engineering consultant service.

Orr & Sembower, Reading, Pa., manufacturer of packaged automatic boilers, has opened a metropolitan New York office at 51 E. 42nd St. under Jared Darlington III.

C. A. Breed, Inc., of West Newton, Mass., has been named to handle Orr & Sembower packaged boilers in the Boston area.

J. R. Snowball

The appointment of John R. Snowball, Columbus, Ohio, as consulting engineer to The Marietta Concrete Corporation, Marietta, Ohio, has been announced by Frank L. Christy, president. Mr. Snowball, a leading authority in the field of structural and precast concrete, has been associated with the Portland Cement Association district office in Columbus since 1940, as housing and products engineer, structural engineer, and quality concrete lecturer. His duties with Marietta will consist of calling on architects, engineers, contractors and concrete products plants, to provide them with information and assistance in the uses of the firm's lightweight aggregate (Beslite) and other Marietta concrete products.

Mr. Snowball has devoted his life to the concrete business. A graduate of Purdue University with a B.S. in civil engineering, he has been engaged in concrete roadwork and various other types of railroad, structural, and civil engineering. He became associated with the P.C.A. in Columbus, from 1925-29, then entered the contracting business, and was associated with a construction company in Cincinnati. Following this, he was appointed a traveling engineer with the Public Works Administration working out of the Chicago regional office. It was from this position he returned to P.C.A. in Columbus in 1940.

LLOYD ADAM has joined the bucket division of Erie Steel Construction as sales manager, to devote his time exclusively to clamshell buckets. He has been general sales manager for Erie Engine & Manufacturing Company for the past ten years.

Lloyd Adam

L. C. Hopper

LEE CALVIN HOPPER has been advanced to the position of advertising manager and export sales director for Elwell-Parker Electric Co., Cleveland, Ohio. He succeeds C. B. Cook, who recently retired.

J. E. Hall

J. E. "Joe" Hall has been named vice-president of Cook Bros. Equipment Company, Los Angeles, exclusive national distributors for Challenge truck mixers, according to an announcement made by Howard F. Cook, president of the company. Mr. Hall will continue as manager of sales for both the Challenge mixers and the firm's line of heavy duty trucks and truck equipment.

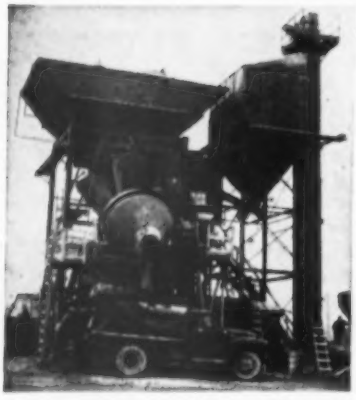
Joining the organization in 1946, Mr. Hall became sales manager in 1947. He has engineered the entire sales and distribution program for marketing Challenge truck mixers, which were initially produced in 1947.

FRANK J. ENERSON has joined Shield Chemical Corp., Verona, N. J., to handle sales of Drycrete and Masticote waterproofing. He has been with Sprayed Insulation Company of Newark.

G. P. Scott, formerly head of the Eveready Briksaw Co. of Chicago, has resigned to become a partner in the Robert G. Evans Co. of Kansas City. The latter company, which commenced operations during 1952, will manufacture a complete line of masonry saws and blades under the tradename *"Target."*

The Eveready Briksaw Co. of Chicago, manufacturers of masonry and concrete saws and blades, has announced the appointment of E. W. Perkins as sales manager.

COMPLETE PLANTS



from a Single Source

- "Tilt-Up" Mixers
- Ready-Mix Plants
- Expressway Semi-Portable Plants
- Dry Batch Plants
- Cement Bins
- Aggregate Bins
- Cement Storage

ENGINEERED TO WORK TOGETHER

From conveyor to elevator, from bin to mixer Burmeister equipment is designed and built by the same organization. Because each product is *"engineered to work together"* you are assured less costly "conversions," maximum production speed, accurate delivery of materials, and greater economy of operation. See your nearest Burmeister Distributor or write for details.

FREE CATALOG

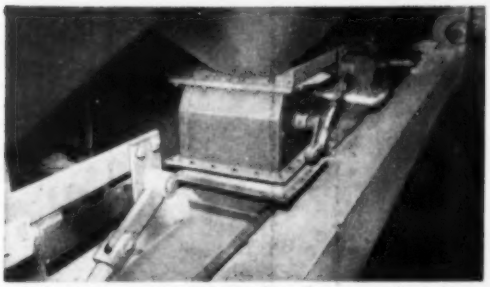
Send for new 16-page illustrated Catalog of Burmeister Plants and Equipment.

COMPLETE PLANTS FROM A SINGLE SOURCE

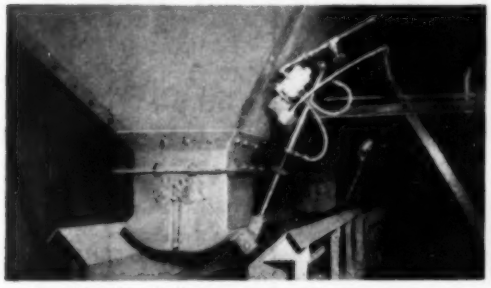
Burmeister

L. BURMEISTER CO., 4531 W. MITCHELL ST., MILWAUKEE 14, WISCONSIN

ANOTHER LEVITTOWN and ANOTHER HELTZEL



Heltzel patented tubular valve eliminates jamming, has pin-point accuracy.



Double clamshell remote control aggregate gate adjustable to control speed.

Levitt's third Heltzel plant promises new concrete batching records for leading city builder.

famous city builder sets third HELTZEL plant into operation at fabulous Bucks County development

Down in Bucks County, Pennsylvania, William J. Levitt, head of the city building firm that bears his name, recently set into operation his third Heltzel concrete batching plant. The fact that his two previous Heltzel plants set record-smashing production records convinced him of Heltzel's ability to produce.

In fact, the first plant played a big part in helping him astound the construction world with his Long Island Levittown. It batched concrete on an average of 1800 cubic yards per day, and on occasion rang up amazing 2,000 yard plus days. His second Heltzel plant was used mainly in the construction of concrete blocks, and untiringly kept pace with the fastest concrete block production on record.

Clean line, all-welded A-frame comes completely assembled, easy to erect.

This new Heltzel plant promises even greater things. It's completely integrated—from supply hoppers to conveying equipment to automatic batcher—it's completely designed and built by Heltzel to give Levitt the nation's most efficient concrete batching. Its capacity is an astonishing 300 cubic yards per hour, it's fully automatic with high speed electronic batching that is accurate to the fraction of a pound; the entire operation is controlled from a central control area, and it bristles with many other new Heltzel exclusives that put an end to guesswork and human error in concrete batching.

Portable or stationary, large or small—if you want the finest in modern batching equipment get the Heltzel story before you buy. Heltzel engineers will be happy to work with you in developing just the plant you need for your operations.

The Heltzel Steel Form and Iron Co., Warren, Ohio

Another New Heltzel Installation

POWERLIFT

Now **truck-man** INCREASES CAPACITY

FOR REAL BLOCK HANDLING ECONOMY

Designed especially for and tested in Concrete Products Plants—the new Model DHP Heavy Duty Truck-Man with *Power Lift* is ready to start saving money for you. This new Truck-Man will handle a full 72 block rack with ease. (New rated capacity—4500 lbs.) *Power Lift* eliminates the back-breaking, time consuming task of raising the load—a flick of the wrist and it's on the way. Once load is raised from the floor, TAKE OFF—balance of lift can be made in transit. As much as a minute is saved each trip—more trips per day—more work with less effort. Oh, yes—all the regular Truck-Man advantages of the agile standard models are retained.

FIVE OTHER VERSATILE MODELS

MODEL DH—4500 lb. Skid Lift with hand pump

MODEL DFP—3000 lb. capacity, power lift Pallet Toter.

MODEL DF—Pallet Toter with hand pump (3000 lb. capacity).

MODEL DT—2000 lb. Platform Utility.

MODEL DR—Truc-Tor for cargo trains. Up to 6500 lbs. on dry, level concrete.

TRUCK-MAN OWNERS

Convert your present Truck-Man trucks with the Packaged Power Lift Conversion Unit. New larger diameter lift cylinder and all other parts required by change are included. Easily and quickly installed.

Want to reduce your handling costs? Clip and mail this coupon today!

truck-man Div. of The KNICKERBOCKER CO.

571 Liberty Street • Jackson, Mich.

Sounds good, please send catalog and further information.

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OSWALT SERVICE

Rings the Bell!

. . . for hitting TOP PROFITS in concrete block production

Business-wise block makers who use Vibrapac machines are increasing production, improving plant efficiency and reducing their operating costs by subscribing to OSWALT COMPLETE SERVICE:

1. Shock-free Block Ejector and Front End Pallet Feeder.
2. New Simplified Height and Density Control Features.
3. Improved Vibration and Machine Changes to speed up block output.

If you are a Vibrapac Owner, get the maximum out of your machine by using OSWALT Complete Service.

OSWALT'S Complete Unit: Block Ejector and Pallet Feeder.

Many satisfied customers operating scores of machines.

Write for name of Oswalt-Serviced plant nearest you.

Write for Bulletin today

OSWALT ENGINEERING SERVICE CORP.
1335 Circle Ave., Forest Park, Illinois
Phones: EStebrook 8-3666 · FOrest 6-3898

Contractors with big work — overseas — where many unfamiliar conditions pose problems of profit or loss — depend upon the familiar and friendly BUTLER PLANT for steady and stable concrete production.

As proof of that confidence, American contractors are operating BUTLER PLANTS from the Arctic to the Latin American Tropics and from Europe to the Orient . . .

Where distance from home puts an unholy cost on replacement parts because of downtime — it is significant that BUTLER PLANTS are the choice.

So, from construction abroad to construction at home; from dams to housing projects; from short highway jobs to turnpikes — there's a BUTLER PLANT to put a better profit in your contract.

TWO FREE BULLETINS — Your choice of one or both! For a complete showing of Ready Mix Plants, ask for Bulletin 185. For detailed description of BUTLER Roadbuilders' Plants, request Bulletin 205.

BUTLER BIN COMPANY

987 Blackstone Avenue Waukesha, Wisconsin

USED TRUCK MIXERS

3—2 yard Rex high discharge truck mixers in good usable condition, very clean.....$475.00 ea.
2—2½ yard Jaeger, high discharge..... 400.00 ea.
1—2 yard Rex in excellent condition.....1200.00 ea.
1—3 yard Rex mounted on 4 x 6 Ford with new engine and reconditioned rear dual drive, mixer in excellent condition..1975.00
1—3 yard Jaeger high discharge truck mixer, good condition, very clean..... 700.00
1—3 yard Jaeger, good condition..... 600.00
1—Dumpcrete 300.00
1—Dumpcrete mounted on International D35 truck..... 500.00

All of these truck mixers are in usable condition, the prices are so cheap, you could own them for parts for some of your present fleet. The prices stated are as is and where is in our yard in Spokane.

ANDREWS EQUIPMENT SERVICE OF WASHINGTON, INC.
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LOWER COST
PACKER-HEAD WINGS
Proved to last as long or longer — yet cost considerably less. Write for prices.
TEXAS FOUNDRIES
LUFKIN, TEXAS

FOR SALE

2—Stearns No. 9 Joltcrete's, complete with dual-shaft vibration, electric height control, power carriage and air operated offbearer. Each machine with an 8" modular 45% attachment. 2—Stearns 42 c.f. mixers. 2—Stearns 42 c.f. vertical skip loaders. 4", 6" and 12" modular attachments. 1—8" Bungalo Siding attachment. 4", 6", 8" and 12" modular, press steel pallets. 100 Chase model 72-8" block, steel racks. All of the above equipment in extra good condition.

GUY D. MOODY
1011 Chester Street — Bristol, Va.

No. 9 Stearns Joltcrete with Height Control, 2 Turntables, Power Carriage, Boom and Air Hoist with 4", 8" and 12" attachments. 4", 8" and 12" Pallets.

40 - 72 Block Racks, Dunn Brick Machine with pallets, Racks and Skip Hoist. Fairbanks-Morse Coal Stoker for 25 H.P. Boiler.

All items priced for quick sale.

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MAQUINARIA y MOLDES
para fabricación de bloques y tubos de concreto

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Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 24 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by
LANDERS-SEGAL COLOR CO.
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FOR SALE

GUARANTEED—ALMOST LIKE NEW
(18) all steel forms for casting concrete slabs in (18) different designs—all complete. You can make sidewalks, patios, sun decks, porches, fish ponds, swimming pools, walls, shutters, decorative facing, etc., etc. Price $79.50 cash.

CHASE CONCRETE MACHINERY CO.
94 Grandview Ave. — Buffalo 23, N. Y.

FOR SALE

Going business producing over 250,000 blocks annually. 1953 Model 2 block Columbia Machine. Excellent area for expansion. • R. R. Siding. Priced to sell

BOX NO. KT-407,
c/o CONCRETE MANUFACTURER
431 S. Dearborn St. — Chicago 5, Ill.

BUILD GOOD WILL

Advertising necessities for the block industry. Line Pins, Twigs, Modular Coursing Stick. Also the new Block Calculator and Wood Corner Block. All imprinted with your advertising. Complete catalog on request.

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STOP *that* WATER

With FORMULA NO. 640
A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.
HAYNES PRODUCTS CO., OMAHA 3, NEBR.

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One block Besser tamper Type block machine with molds & cores for 4, 6, 8, 10 and 12 inch blocks. Price $5000.00 less $500.00 inspection expense if you buy.

Vaughn Block Yard Inc.
Vaughn, Mont.

WANTED: Septic tanks that need cleaning!

BIONETIC is a safe, sure, economical method.

Cleans sewage solids from tank
Eliminates odors
Cleans tile fields, prevents plugging
Cleans grease traps
Harmless to humans, and plumbing

BIONETIC at $4.25 per pound, or case of 12 one pound containers $48.00, 25 pound drum $3.25 pound.

Advisory Service, write us.

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P.O. Box 6724, Dept. PQ — Houston 5, Texas

READY MIX PLANT

An operating Ready Mix Plant and Concrete Block Plant with Fleming 2180 Auto. Block machine. Complete with Mixer Trucks, Dump Trucks, Silo and Bins. On Trackage. Terms.

PROPERTY SALES, INC.
305 S. 42 St. — Omaha, Nebr.

FOR SALE

Pallets—12¼" x 18" x ¼" plain steel 1,200 clean excellent condition.
Appley Little Giant, complete for making 4", 8" & 12" with 800—8" cored pallets.

BOX 905
Bemidji, — Minnesota

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Representatives to sell engineered steam curing system to concrete block plants in all territories. Established boiler manufacturer with many contacts offers liberal commission arrangements, sales and engineering help to qualified representatives. May be handled as a sideline. Replies confidential.

BOX NO. KT-405
c/o The Concrete Manufacturer
431 S. Dearborn Street — Chicago 5, Illinois

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A Pipe & Block Mfg. Plant in operation in Maryland. Covers 6 acres of ground. All new machinery. Reason for selling, health. For more information write:

BOX NO. KT-406
c/o The Concrete Manufacturer
431 S. Dearborn Street — Chicago 5, Illinois

LINTEL MOLDS FOR SALE
LINTEL MOLDS FOR SALE

Also Stepping Stone and Splash Block Molds. Substantial Discount.

CONCRETE MOLD & ENGINEERING CO.
P.O. Box 183 — Battle Creek, Michigan

FOR IMMEDIATE SALE

1—Stearns Model "50" block machine with offbearer —28 cubic foot Stearns Mixer—racks and pallets to make 4000 8" blocks per day. Can be seen running at any time.

PARKWAY CINDER BLOCK & BUILDING MATERIAL CO.
741 Rockaway Parkway
Brooklyn 36, New York

FOR SALE

2 each 6", 8", 10", 12" concrete pipe split jackets. 978 pallets for same. Pallets like new, jackets fair. $1000 for lot.

BURNHAM MFG. COMPANY
Box 923 — Twin Falls, Idaho

UNBREAKABLE
PALLET RINGS
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

READY-MIX PLANT

Located in a fine Southwestern Community. Fine opportunity. Small investment required. Write:

BOX No. HR-203
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MINERAL COLORS
for
BRICK MORTAR
STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

TRUCK MIXERS

Annual Clearance • Prices Drastically Cut

IMMEDIATE DELIVERY ANYWHERE

Check These Prices . . . Units Thoroughly Reconditioned and Guaranteed

- 1948 WILLARD 3 Yard Mixer mounted on '48 Ford V-8 C.O.E. 2-speed axle, 8.25 tires. You'll like this one for $1895
- 1949 CHALLENGE 3 Yard Mixer mounted on '49 Ford V-8 145 H.P. 2-speed axle, 9.00 tires. A Dandy for only $2650
- 1950 Rebuilt WILLARD 3 Yard Mixer mounted on '48 Ford "F-6" 254 cu. in. engine, 2-speed axle, 8.25 tires . . only $2250
- 1950 CHALLENGE 3 Yard Mixer mounted on '49 Ford V-8 C.O.E. 2-speed axle, 8.25 tires. Tagged to sell for $2850
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- 1950 CHALLENGE 5 Yard Mixer mounted on '51 Ford "F-7" 145 H.P. V-8 & equipped with Cook Bros. Dual Gear Drive with 2-speed power divider. New 9.00 tires. Nail this one before it's too late . . now only $6950
- 1951 Rebuilt WILLARD 3 Yard Mixer mounted on '51 Ford "F-6" 254 cu. in. engine, 2-speed axle, 8.25 tires. A steal at $2950
- 1952 WILLARD 3 Yard Mixer mounted on '52 Ford with 254 cu. in. engine, 2-speed axle, 8.25 tires. Giving this away for $4350
- 1945 JAEGER 3 Yard Hi-Discharge Mixer, unmounted for only $895
- 1946 JAEGER 3 Yard Hi-Discharge Mixer, unmounted & tagged for $995
- 1949 CHALLENGE 3 Yard Mixer, unmounted & exceptionally clean, $1395
- 1950 CHALLENGE 3 Yard Mixer, unmounted and for quick sale, $1595
- 1950 CHALLENGE 5 Yard Mixer, unmounted - - priced right, $2895

These units in operating condition available "AS IS"

- 1947 CHALLENGE 3 Yard Mixer, mounted on '47 Ford "F-8" Single speed axle, 9.00 tires . . a buy for only $850
- 1948 CHALLENGE 3 Yard Mixer, mounted on '46 Ford V-8 2-speed axle, 9.00 tires. Don't miss this — only $850
- 1945 RANSOM 4½ Yard Mixer, unmounted & priced for quick sale, $545
- 1947 COOK, Model TM, unmounted - - a real profit maker, $545
- 1947 SMITH 2 Yard Mixer, unmounted — available for only $495
- Fleet of JAEGER Model "B" 4½ Yard Hi-Discharge Mixers, unmounted. These are "terrific" values - - $250 and up.

All mixers are available unmounted if desired. Liberal Terms

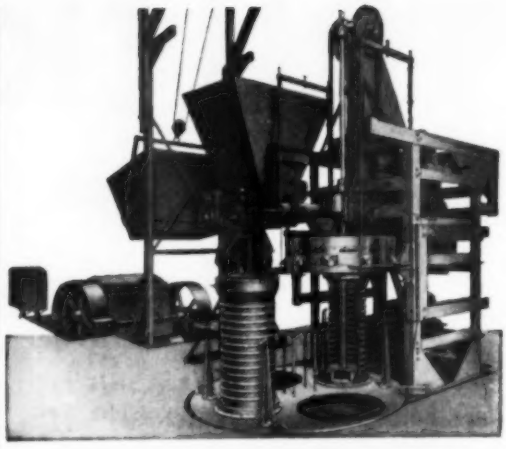
COOK BROS. EQUIPMENT COMPANY

1825 No. Broadway, Los Angeles 31, California

Telephone: CApitol 2-9116

You Can't Match McCracken FOR CONCRETE PIPE PRODUCTION

1. Doubles production in all sizes 4" to 36".
2. Handles 90% of suburban market—80% of metropolitan market.
3. Does twice the business with half the inventory.
4. Makes all the sizes in which machine-made production and fixed-plant operation offer any real economy.
5. Produces quality pipe to meet all requirements with liberal margin of safety.
6. Reduces cost from 50% to 10%—50% on the 4" size down to 10% on the 36" size.
7. A wide range of sizes with lowest costs in every size it makes.
8. More resales—you can't sell a lemon to the same man twice.



MODEL "T" (Pictured Above)—4" to 36";
MODEL "R"—4" to 18";
MODEL "D" for Drain Tile—sizes 4" to 16"

WRITE FOR COMPLETE INFORMATION TO DEPT. CPS at any of the following addresses:

Eastern Representative
Harry E. Amar
211 East 149th St.
New York 51, N. Y.

Central & South American Agent
George W. Hoffmann
Apartado Postal 1173
Mexico, D. F.

MAIN OFFICE AND FACTORY, SIOUX CITY, IOWA

CONCRETE PIPE MACHINERY CO.
SIOUX CITY, IOWA

PIT AND QUARRY

Research Department

431 So. Dearborn St., Chicago, Ill.

Please send me catalogs and Prices concerning the following items checked below:

- ☐ Admixtures, Concrete
- ☐ Agitators, Slurry
- ☐ Aggregate-Bituminizing Plants
- ☐ Air Cleaner
- ☐ Air Compressors
- ☐ Asphalt Mixing Plants
- ☐ Asphalt Mixers
- ☐ Bag Filling and Weighing Machinery
- ☐ Bags, Cloth
- ☐ Bags, Paper
- ☐ Balls, Steel
- ☐ Barges, Steel
- ☐ Batching Equipment
- ☐ Belt Dressing
- ☐ Belt Fasteners
- ☐ Belting, Conveyor and Elevator
- ☐ Belting, Transmission
- ☐ Belt Tighteners
- ☐ Bin, Gates
- ☐ Bins
- ☐ Blasting Powder
- ☐ Blocks, Friction
- ☐ Bodies, Motor Truck
- ☐ Buckets, Clamshell
- ☐ Buckets, Conveyor and Elevator
- ☐ Buckets, Dragline
- ☐ Buckets, Orange Peel
- ☐ Cableways, Blackline
- ☐ Calcining Machinery
- ☐ Caps, Blasting
- ☐ Car Dumpers
- ☐ Car Pullers and Movers
- ☐ Carriers, Belt
- ☐ Cars, Dump
- ☐ Cars, Kiln
- ☐ Castings
- ☐ Cement Colors
- ☐ Cement Plants, Bulk
- ☐ Chains, Conveyor and Elevator and Drags
- ☐ Chains, Power Shovels, Crane
- ☐ Chains, Transmission
- ☐ Classifiers
- ☐ Clutches
- ☐ Clutches, Magnetic
- ☐ Concrete Block Machines
- ☐ Concrete Brick Machines
- ☐ Concrete Joist Machines
- ☐ Concrete Stave Machines
- ☐ Concrete Plants, Ready Mix
- ☐ Cones, Washing
- ☐ Connectors, Wire Rope
- ☐ Conveyors, Apron
- ☐ Conveyors, Belt
- ☐ Conveyors, Concrete
- ☐ Conveyors, Screw
- ☐ Conveyors, Skip
- ☐ Coolers
- ☐ Coupling, Flexible
- ☐ Cranes, Locomotive
- ☐ Cranes, Overhead Traveling
- ☐ Cranes, Truck
- ☐ Crushers, Cone
- ☐ Crushers, Gyratory
- ☐ Crushers, Hammer
- ☐ Crushers, Jaw
- ☐ Crushers, Ring
- ☐ Crushers, Roll
- ☐ Cutter Heads, Dredging
- ☐ Derricks
- ☐ Draglines, Cableway
- ☐ Draglines, Revolving Boom
- ☐ Dredges, Hydraulic
- ☐ Dredges, Ladder
- ☐ Drills, Air
- ☐ Drills, Diamond
- ☐ Drills, Hand Hammer
- ☐ Drills, Primary Blast Hole
- ☐ Drills, Sharpening Machinery
- ☐ Drills, Sinker
- ☐ Drills, Wagon
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- ☐ Dynamite
- ☐ Elevators, Bucket
- ☐ Engines, Diesel
- ☐ Engines, Gasoline
- ☐ Engines, Hoisting
- ☐ Explosives
- ☐ Feeders
- ☐ Filters
- ☐ Filters, Oil
- ☐ Fire Brick
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- ☐ Screens, Vibrating
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- ☐ Testing Equipment
- ☐ Thickeners, Slurry
- ☐ Track, Portable
- ☐ Track, Shifters
- ☐ Tractors, Crawler
- ☐ Tramways, Aerial
- ☐ Trippers, Belt
- ☐ Trippers, Tramway
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- ☐ Vibrators, Electric and Air
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Firm Name.....*Individual*.....

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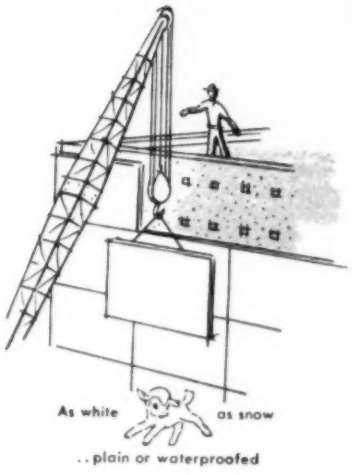
the whitest white cement . .

Trinity White

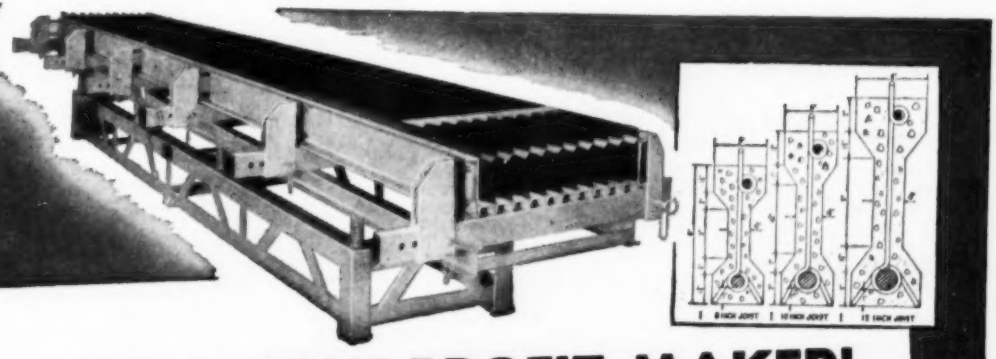


. . plain or waterproofed

ENDURING BEAUTY IN MASONRY

Some of the most noteworthy architectural structures of this generation are faced with architectural concrete units made with Trinity white cement . . . and Trinity white contributes to the beauty and permanence of many thousands of homes, stores and public buildings. Use Trinity white for terrazzo, stucco and wherever an extra fine appearance is desired.

A product of GENERAL PORTLAND CEMENT CO. Chicago • Dallas • Chattanooga • Tampa • Los Angeles



. . . ADD A NEW PROFIT-MAKER!

INCREASE YOUR VOLUME

Produce money-making concrete joists with the Kirk & Blum Heavy Duty Vibrating Table . . .

Cash in on the ever-growing demand for steel-reinforced concrete joists. Your experience and contacts in the building trade should make it easy to build up a profitable business in this new line. Concrete joists are simple to make, have unusual strength, are termite proof. The KIRK & BLUM Type "S" Heavy Duty Vibrating Table is capable of multi-production of concrete joists, allowing a fine profit-margin. Easily produced by unskilled operators. For complete details and prices, write to The Kirk & Blum Mfg. Co., 3112 Forrer Street, Cincinnati 9, Ohio.

Only small investment required!

The addition of the Kirk & Blum Vibrating Table to your present equipment requires a very small initial cost, enables you to make an entirely new line of 8", 10" and 12" joists in 20 and 24 ft. lengths.

KIRK AND BLUM

Manufacturers of steel forms of all types . . . Curb, Gutter, Sewer, Road.

NEW! APPLEY PRECAST CONCRETE LINTEL FORMS

A new product that assures you of new, faster profits! APPLEY Hex-type Precast Reinforced Concrete Lintel Forms are practical . . . economical . . . eliminate costly forming and pouring of lintels over window and door openings. Reduce building costs without sacrificing quality. Use only lightweight materials; no heavy equipment needed.

Available in lengths of 3'-0" to 14'-0"

✓ CHECK THESE FEATURES OF APPLEY SUPERIORITY

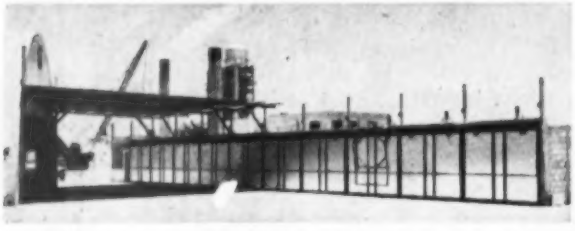
- **No tools needed to set up forms—just remove four wing nuts**
- **All welded construction—nothing to wear out**
- **Easy stripping at all times—even with unskilled labor**
- **Uniform lintels appeal to architects and contractors**
- **Modular size**

Write for FREE Descriptive Literature!

J. W. APPLEY & SON, Inc., St. Petersburg, Florida

MANUFACTURERS OF BLOCK MACHINES, MIXERS, SKIP HOISTS

SAVE FUEL • REDUCE CURING TIME • CUT COSTS • UP PROFITS with *Standard* KILN DOORS!



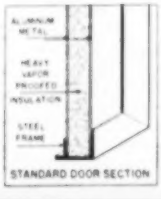
● This is the modern STANDARD kiln door installation of Portland Industries Inc., Riviera Beach, Florida. C. R. Wilson, the firm's Executive Vice President, writes: "Our Standard kiln doors have been very satisfactory."

To suit your individual requirements, three types of STANDARD kiln doors are available—the sliding carrier-type (shown above), the top hinge-type (which is pulled up by a hoist), and the side hinge-type.

CHECK THESE FEATURES

✓ **Heavy Aluminum Sheets on Both Sides of Thick Vapor Proofed Insulation.**

✓ **Rugged Steel Frame.**



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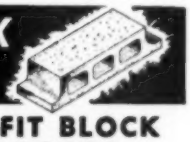
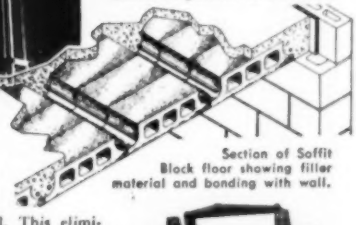
SELL MORE BLOCK ON EVERY JOB!



Furnish VIBRAPAC SOFFIT BLOCK for ALL FLOORS and ROOFS

Removing Centers from Finished Floor.

Permanent, Fireproof Floors and Roofs. Low initial cost and maintenance. Natural base for radiant heat installations. Provide surface of maximum acoustical and insulation value. Can be plastered, or if left exposed, makes a ceiling of beautiful pattern and texture.

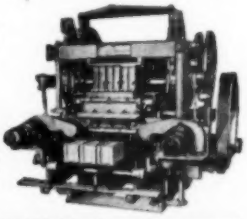


Section of Soffit Block floor showing filler material and bonding with wall.

Soffit Block are supported in place with temporary adjustable steel centers while reinforced concrete slab is placed and cured. This eliminates timber shoring and leaves space below clear during construction.

BESSER VIBRAPAC PRODUCES SOFFIT FLOOR AND ROOF UNITS

The same machine that produces high quality concrete masonry units in all styles and sizes, using Plain Pallets. Continuous, full capacity operation. Fully automatic. No machine operator required.



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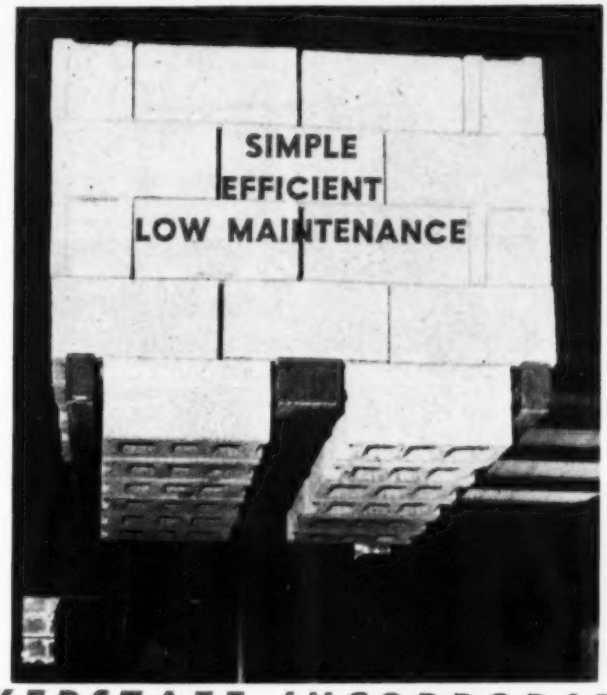

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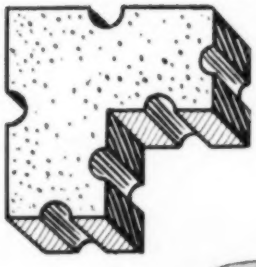

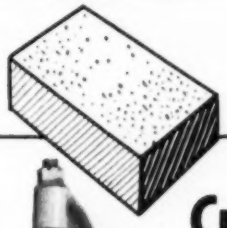

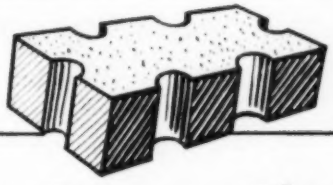

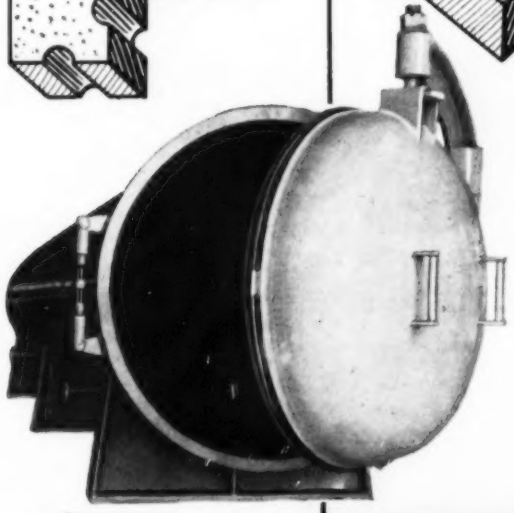

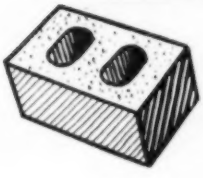

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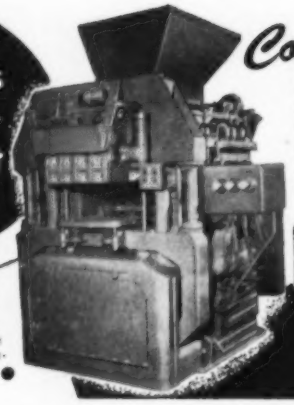
They reduce "door time" from minutes to seconds! No lugs, bolts, levers or sliding bars. Self-sealing gasket positively operated by internal pressure. Smooth-functioning ball bearing davit-type hinges. Manual or hydraulic operation. Adaptable to either vertical or horizontal vessels. Furnished in sizes up to 10 ft. diameter. For details on this and other Blaw-Knox equipment of interest to concrete product manufacturers, write for Bulletin No. 2355.

BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Process Equipment Department
Pittsburgh 22, Pa.

more blocks per minute... more profit per hour!



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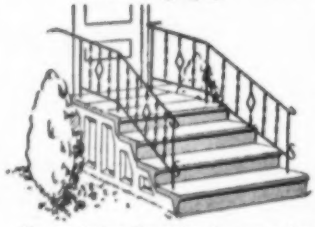

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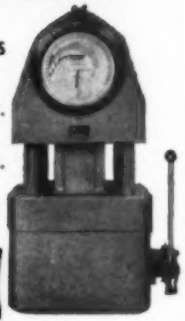

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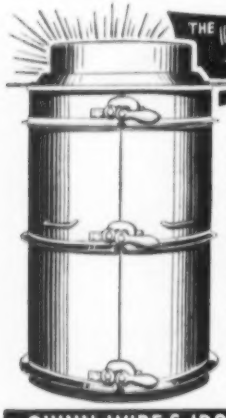

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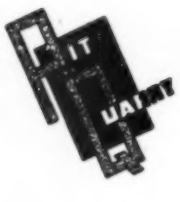

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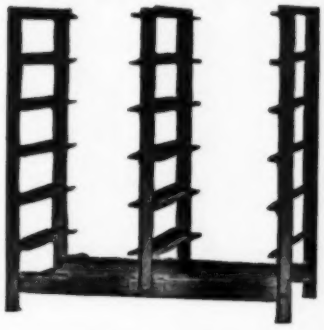

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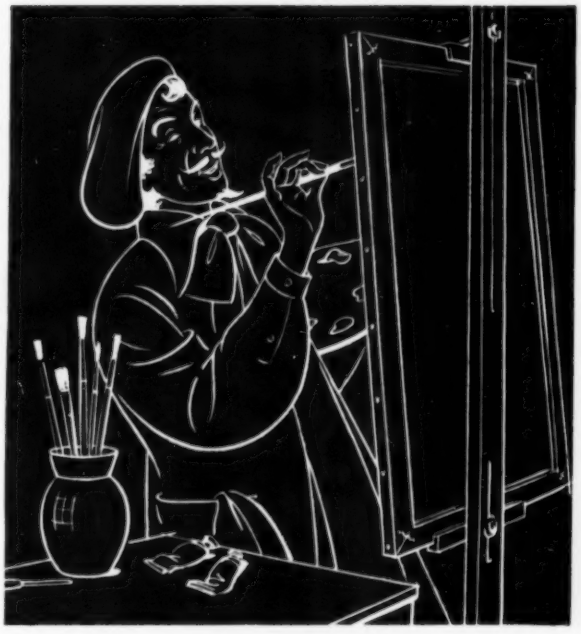

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Because of the rapid growth of the industry in the past few years, and the important technological developments which have accompanied that growth, the Yearbook has been re-edited from front cover to back. Pages of new information, drawn from the experiences of the industry's outstanding producers, have been added to make this edition more than ever the indispensable text book of the concrete field.

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M & M ENGINEERS have developed a SIMPLIFIED, MAINTENANCE FREE PALLET INJECTOR for use on the Besser Vibrapac and Stearns No. 15 Block Machines.

Months of testing and re-engineering has evolved the MOST SUCCESSFUL, TROUBLEFREE PALLET INJECTOR yet to hit the market and PRICED RIGHT. CAN BE INSTALLED IN ONE HOUR.

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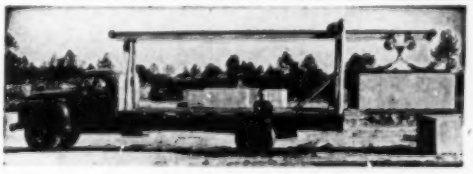

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Capitalize on a small investment! Make quality septic tanks with modern CARPENTER Equipment . . . save time when pouring, stripping, resetting. Using our rig, one man loads, transports, and places tank. We have satisfied customers from coast to coast. Full details on request.

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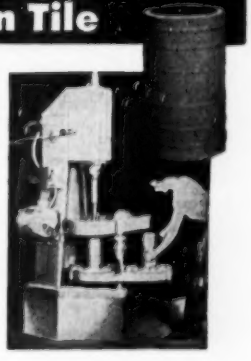
Make Money with *Champion* Cement Drain Tile



More millions of drain tile are needed to supply ever growing demand. The market is broad and profits are big.

The Champion makes the world's best drain tile. Densely compacted . . . ribbed for extra strength . . . every one truly concentric.

Champion machine is simple, compact and really rugged. Automatic feeder (optional) makes for 1-man operation. Write for literature — gives facts about the business and the equipment.

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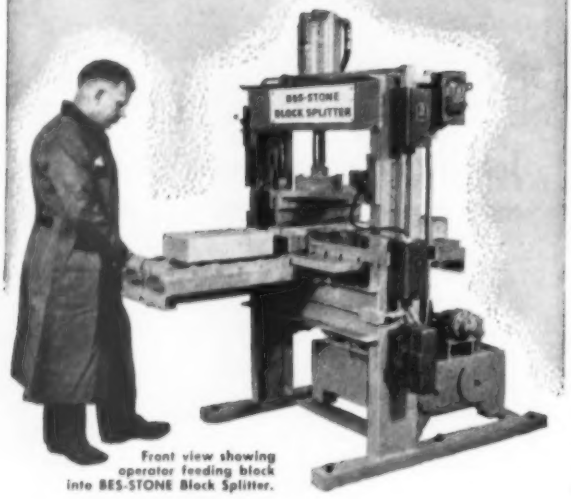
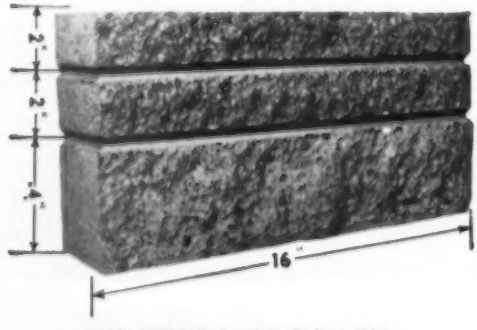
BES-STONE
BLOCK SPLITTER



Front view showing operator feeding block into BES-STONE Block Splitter.

- **Operates Automatically**
- **Produces 960 Split Block Per Hour**
- **Easily Adjusted for Various Heights**
- **Splits in a Straight Line — No Culls**
- **Has a Powerful Hydraulic Action**
- **Combines Quiet Operation with Safety**

Here is another Besser machine — the BES-STONE Block Splitter — designed primarily for the Concrete Products Industry. The machine splits block with speed and precision, in a variety of modular sizes. It's fully automatic. The block is placed under the knife automatically . . . the blade descends with a smooth, hydraulic action . . . and the split block is ejected by the incoming block. The operator is always at a safe distance. The BES-STONE Block Splitter enables plant operators to offer additional lines and affords new profit possibilities. Write for Bulletin No. 95A.



BES-STONE in Modular Sizes

BES-STONE, the product of the BES-STONE Block Splitter, is a new masonry unit with a split-stone appearance, made in many sizes and in a series of attractive, permanent colors. You'll find it complements, and greatly increases your sales of standard stripper block.

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Complete Equipment for Concrete Products Plants

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A 7475-½P

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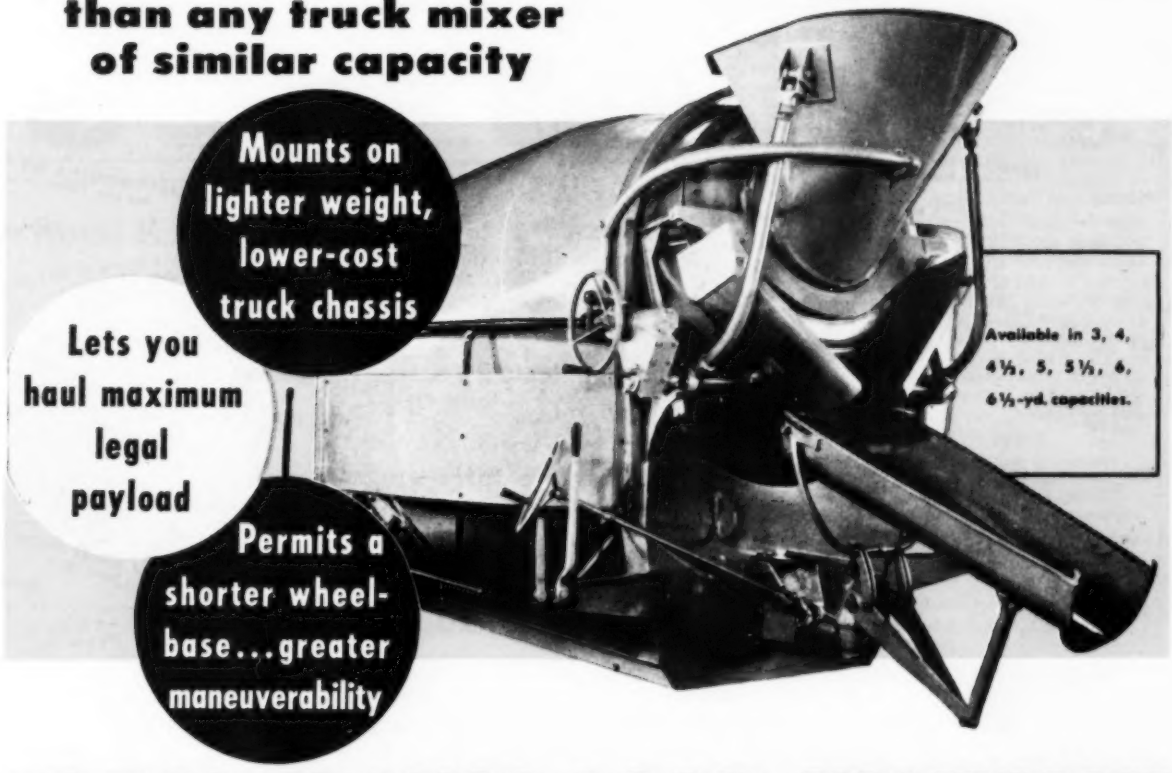
*See also Detailed Information in 1953 Pit and Quarry HANDBOOK and CONCRETE INDUSTRIES YEARBOOK

Shorter and lighter!

than any truck mixer of similar capacity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Lets you haul maximum legal payload
Permits a shorter wheel-base...greater maneuverability
Available in 3, 4, 4½, 5, 5½, 6, 6½-yd. capacities.

LE ROI-TRANSO LOAD CHAMPION

You carry full rated capacity within gross vehicle weight limits . . . make more round trips daily . . . and cut costs all around — with the Le Roi-Transo Load Champion.

Light weight and compactness are only two of the reasons why you enjoy such profitable performance. The patented Transo direct drive is another. It reduces non-productive dead-weight — eliminates ring gears, chains, and sprockets; thus cuts replacement and maintenance costs.

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Ask your Le Roi-Transo distributor to give you all the details. Or write for bulletin.

Le Roi-Transo DeLuxe Transo-mixer. 12" to 17" shorter than any other mixer-agitator at equal capacity—1,000 to 1,600 lbs. less dead-weight. 3, 4, 4½, 5, 5½, 6, 6½-yd. capacities. Available with fluid couplings or torque converters.

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Quantity	Belt Width	Length of Conveyor	List Price	Sale Price
1	18"	25'	$1229	$668
1	18"	35'	1589	814
1	18"	50	2054	1043
1	18"	85'	3209	1681
1	18"	125'	4529	2096
1	24"	30'	1507	824
1	24"	45'	2062	1085
1	24"	65	2721	1451
1	24"	85'	3542	1806
1	24"	100'	4097	2037
1	30"	35	1421	806
1	30"	35'	1841	997
1	30"	65'	3101	1617
1	30"	80	3731	2295
1	30"	100'	4571	2768
1	30"	125'	5621	2818

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3-roll Troughing Idlers for these sizes:

16" belt..... $17.25 30" belt..... $19.50
18" belt..... 18.00 36" belt..... 20.25
24" belt..... 18.75 48" belt..... 21.75

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20 Ton Truck Scales $525.00
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Others to 50 ton capacity. All complete with structural steel weighbridge.

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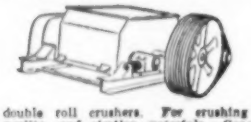

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2—G.E. 25 Ton Diesel Electric.
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Insley "K-10" ⅜ yd. Shovel, Crane or Hoe. Rebuilt & Guaranteed.
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Schield-Bantam Shovel Attachment only for "M-47".

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Cedarapids Portable Primary Plant on Pneumatics w/1524 Jaw Crusher, 24" x 6'0" Apron Feeder, gas power. 30" discharge conveyor, etc. Bargain.
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Note: This equipment is all located in our yard.

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Complete Rock Crushing Plant

Portable crushing plant consisting of: 36x30 Dixie Hammer Mill powered with a 6 cyl. G.M.C. 159 B.H.P. Diesel motor. Apron feeder and 24"x40' belt conveyor powered with 4 cyl. A.C. Indus'l motor. Plant on 11/2 ton Int'l truck as semi.

1—⅝ yd. Unit crawler shovel powered with a 4 cyl. Waukesha gas engine.
1—Baughman car unloader and truck loader, suitable for sand, lime, stoker coal, etc.
1—2 ton '46 Reo with 10' Agg. lime bed.
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½ yd. Owen Type M. General Purpose 2770#.

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15 HP Mead Morrison #A-4015, Lincoln motor 220/3/60, 15,000# @ 45 FPM. Excel. shape.

7½ HP Mead Morrison #952, 3/60/220, handle 1 to 5 loaded cars.

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1½ yd. Mdl. 77 Lorain #9163, Cat. D-13000 Diesel, 45 to 85' boom, 20' jib, wt. 80,000#.

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No. 3 Northwest Crawler Crane, ¾ yd. 40' boom, Wisc. gas engine. Ready to go to work. Slashed to $4,000. (Chicago)

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15-Ton Vulcan Std. Ga. Loco., Ser. 3903, 6 cyl. Le Roi Mdl. JMS gas eng., yours for $1,500.00. (Chicago)

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28-S Jaeger Stationary Mixers, 25 HP, electric, 220/440/3/60, 100 gal. water tank. Rebuilt, excel. cond. Only $2750.00. (Clifton Hts.)

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75 KW Diesel AC Generator, 220/440/60/3, Cat. D-13000 Diesel eng., all controls & starting eng. Generator completely rewound. Excel. shape. Priced under the market.

10 KW Ready Power Plant, 230 volts DC, 43.5 amps., Ser. 55148, 1800 RPM, power Inter. Harvester 4 cyl. water cooled gas eng., very good shape. Only $500.

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100 HP American 3/drum #1888M, 3/60/440 slipring, 9,000# @ 275 FPM, w/attached Lidgerwood swinger.

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8½x10 2/drum Lambert, w/space for boiler. Drums 14x25x7".

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12" Dayton Dowd, vert., 50 HP, 3/60/220/440, 6000 GPM @ 19', 4250 GPM @ 32'. Wt. 4110#.

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8—6' x 40', 5' x 40' Ruggles-Coles; 54" x 25' Class Xf-4 Ruggles-Coles, also 3—3' x 50', x 5' x 50', 6' x 60', 7' x 70' Direct Heat. Also 3—6' x 50' Louisville Rotary Steam Tube.

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6—Link Belt Roto-Louvre Dryers: #207-10 (2' x 7" x 10') #310-16, #503-10, #604-20, two #604-24.

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Jaw—2" x 6", 6" x 15" Sturtevant; 18" x 36" and 24" x 36" Farrel; 42" x 48" Traylor; Rolls: 42" x 16" Allis-Chalmers Type B; 24" x 32" Penna. single roll. Portable Plants—Cedar Rapids 1036-BBB; 2540-AAAA, 2036-AAA, also Pioneer with 30" x 42" primary and secondary crushers, all Diesel driven.

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1—5 roll Raymond High Side.

6—#1, #0, #00, #000 Raymond Mills.

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2—#51 Raymond Imp Mills.

2—Mikro #2TH, #4TH.

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6—Hardinge Mills, 3' x 8", 5' x 22", 6' x 22", 8' x 48".

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1—Complete Lime Hydrating Plant, incl. Kreitzer Hydrator, Raymond Pulverizer, Jeffrey Pulverizer, Hummer Screen, etc.

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1—3' x 6' Colorado Iron Works, 1-deck.

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2—2 stage Washing Classifiers, each with two rakes in tandem, in steel trough 26'6" long x 3' wide, with drives.

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Symons 1½ deck 4"x14' vibr. screen
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Foundry vibr. single deck screen, 6'x8'
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20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
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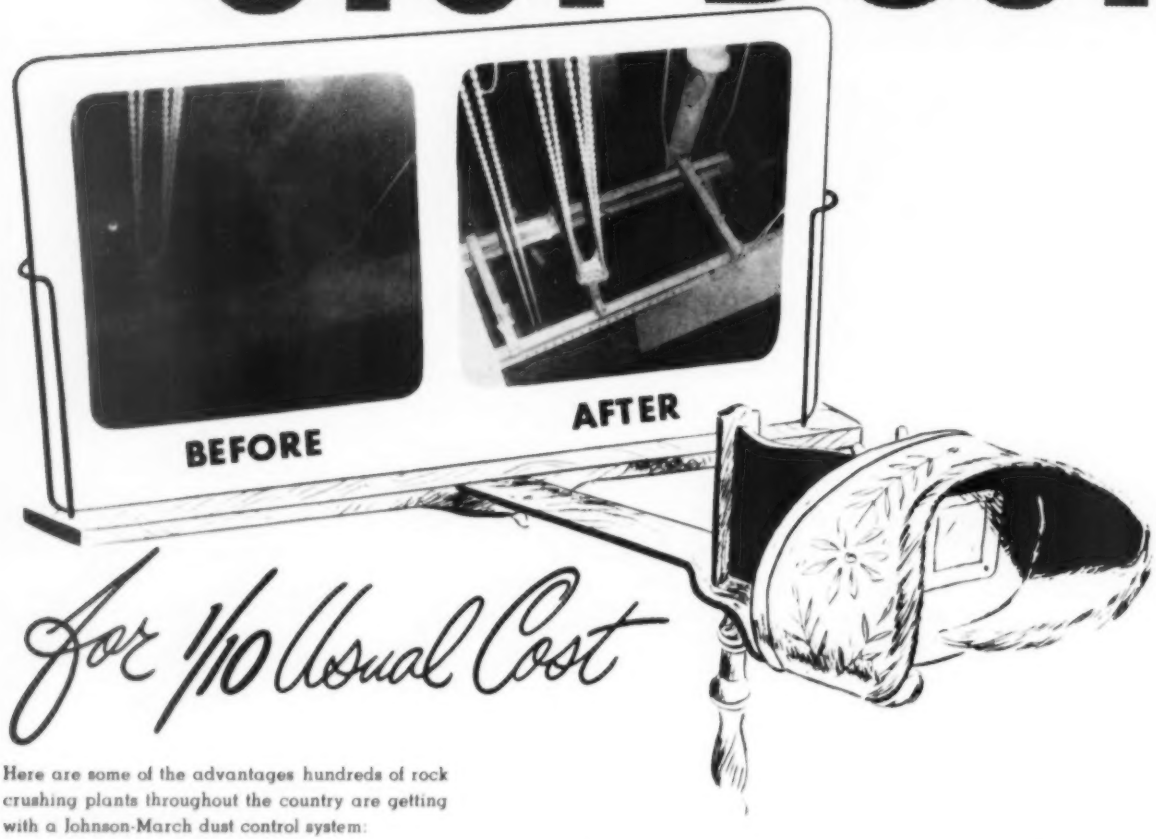

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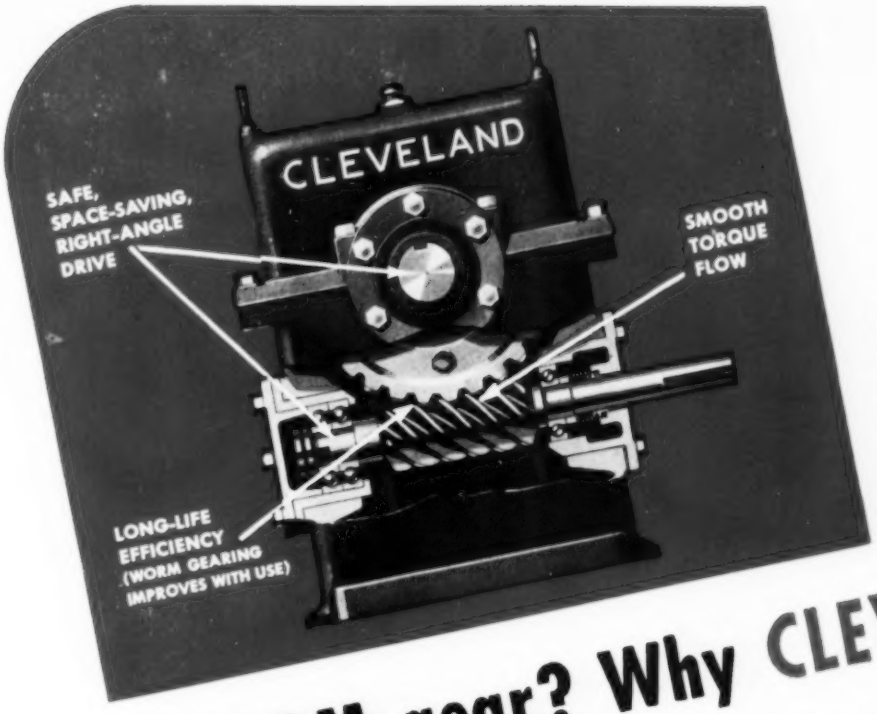

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